

Staff Report

# **Bay Area to Central Valley High-Speed Train (HST) Revised Final Program Environmental Impact Report (EIR)**

August 2010





**Staff Report  
for the  
Bay Area to Central Valley  
High-Speed Train (HST)  
Revised Final Program  
Environmental Impact Report (EIR)**

*Prepared by:*

California High-Speed Rail Authority  
925 L Street, Suite 1425  
Sacramento, CA 95814  
Contact: Mr. Dan Leavitt  
916/324-1541

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## ACRONYMS AND ABBREVIATIONS

ac	acres
ACE	Altamont Commuter Express
Authority	California High-Speed Rail Authority
BART	Bay Area Rapid Transit District
BCDC	Bay Conservation and Development Commission
Business Plan	final business plan
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CRF	California Rail Foundation
CSPF	California State Parks Foundation
CWA	Clean Water Act
EIR/EIS	Environmental Impact Report/ Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GEA	Grassland Ecological Area
HST	High-Speed Train
ISTEA	Intermodal Surface Transportation Efficiency Act
JPB	Joint Powers Board
kph	kilometers per hour
LEDPA	least environmentally damaging practicable alternative
MMRP	mitigation monitoring and reporting plan
mph	miles per hour
MTC	Metropolitan Transportation Commission
NEPA	National Environmental Policy Act of 1969
NOI	Notice of Intent



NOP	Notice of Preparation
PCL	Planning and Conservation League
Program EIR/EIS	Bay Area to Central Valley HST Program Environmental Impact Report/ Environmental Impact Statement
RAFT	Regional Alliance for Transit
ROD	Record of Decision
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SamTrans	San Mateo County Transit District
SR	State Route
TA	Transportation Authority
TEA-21	Transportation Equity Act for the 21st Century
TIE	Transportation Involves Everyone
TRAC	Train Riders Association of California
TRANSDEF	Transportation Solutions Defense and Education Fund
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VMT	vehicle miles traveled
VTA	Santa Clara Valley Transportation Authority



# STAFF REPORT FOR THE BAY AREA TO CENTRAL VALLEY HIGH-SPEED TRAIN (HST) REVISED FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT (EIR)

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AGENDA ITEM 6: Consideration of a Resolution (1) Certifying the Bay Area to Central Valley High Speed Train (HST) Revised Final Program Environmental Impact Report (Revised Final Program EIR), (2) Adopting California Environmental Quality Act (CEQA) Findings and a Statement of Overriding Considerations, (3) Approving a proposed network alternative, alignment alternatives, and station location options for the Bay Area to Central Valley, (4) Adopting a Mitigation Monitoring and Reporting Program (MMRP), and (5) Directing staff to file a Notice of Determination (NOD).

## 1.1 Summary

The adoption of the proposed resolution No. HSRA 11-11 would complete the California High-Speed Rail Authority's (Authority) compliance with the court judgment in the litigation *Town of Atherton v. California High-Speed Rail Authority*. Adoption of the resolution would also complete the programmatic phase of CEQA compliance by certifying the revised program-level EIR. Certification of the Revised Final Program EIR would allow for the Authority Board to approve a network alternative for the Bay Area to Central Valley portion of the HST system, alignment alternatives, and station location options.

### 1.1.1 2008 Final Program EIR and Decisions

The California High-Speed Rail Authority (Authority), with the Federal Railroad Administration (FRA), completed the *Final Bay Area to Central Valley HST Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* in May 2008 (2008 Final Program EIR) that evaluated alternatives—at a programmatic level of analysis—of the proposed HST system within the broad corridor between and including the Altamont Pass and Pacheco Pass. The Authority and FRA identified the Pacheco Pass serving San Francisco and San Jose termini as the preferred HST Network Alternative, as well as mitigation strategies, design practices, and further measures to guide the system's development and avoid and minimize potential adverse environmental impacts. The Authority approved the project and issued a CEQA NOD on July 9, 2008.

### 1.1.2 Town of Atherton CEQA Litigation and Final Judgment

The Authority's compliance with CEQA was challenged in litigation titled *Town of Atherton, et al., v. California High-Speed Rail Authority*, Sacramento Superior Court No. 34-2008-80000022. The court's judgment entered on November 3, 2009, found that the Authority's certified 2008 Final Program EIR failed to comply fully with CEQA and identified areas requiring additional analysis. To comply with the court judgment, the Authority rescinded its certification of the 2008 Final Program EIR, its approval of the Pacheco Pass Network Alternative serving San Francisco via San Jose, and related documents.

### 1.1.3 Revised Draft Program EIR

Next the Authority prepared and circulated a Revised Draft Program EIR Material (Revised Draft Program EIR) containing the information and analysis needed for compliance with the court judgment. The Revised Draft Program EIR included a corrected project description for San Jose to Gilroy, revised analysis of impacts on land use and property, the Monterey Highway, and Union Pacific Railroad freight operations. The Revised Draft Program EIR identified the Pacheco Pass Network Alternative serving San Francisco via San Jose as the preferred HST Network Alternative. The Revised Draft Program EIR was circulated for a 45-day public comment period.

#### **1.1.4 Revised Final Program EIR**

Following the close of the public comment period, the Authority prepared a Revised Final Program EIR. The Revised Final Program EIR is a lengthy document that includes:

- Volume 1 – Revised Final Program EIR Main Text
- Volume 2 – Revised Final Program EIR Responses to Comments
- 2008 Final Program EIR, including Volume 1 (Main Text), Volume 2 (Appendices), and Volume 3 (Responses to Comments)

The Authority Board is being asked to consider the Revised Final Program EIR and the whole of the record before it, including public comments, submitted evidence, and supporting documentation, in making new decisions.

### **1.2 Recommended Action**

That the Authority adopt the attached Resolution No. HSRA 11-11, which would certify the Revised Final Program EIR as being in compliance with CEQA, adopt CEQA Findings of Fact and a Statement of Overriding Considerations, approve the Pacheco Pass Network Alternative serving San Francisco via San Jose, alignment alternatives and station location options, and adopt a Mitigation Monitoring and Reporting Program.

### **1.3 Background Information**

This section briefly describes the Bay Area to Central Valley HST environmental review under the CEQA and National Environmental Policy Act of 1969 (NEPA) certification process.

#### **1.3.1 California High-Speed Train System**

The Authority proposes a HST system for intercity travel in California between the major metropolitan centers of Sacramento and the San Francisco Bay Area in the north, through the Central Valley, to Los Angeles and San Diego in the south. The HST system is projected to carry as many as 117 million passengers annually by the year 2030. The Authority adopted a final business plan (Business Plan) in June 2000, which examined the economic viability of a train system capable of speeds in excess of 200 miles per hour (mph) (322 kilometers per hour [kph]) on a fully grade-separated track, with state-of-the-art safety, signaling, and automated control systems.

Since the Authority's July 2008 decisions based on the 2008 Final Program EIR, the Authority has prepared two Business Plans and one Business Plan Addendum. The first of these, published in November 2008, updated the Authority's first Business Plan from 2000. The 2008 Business Plan was intended to provide a credible, experience-based estimate of the HST system's financial and economic outlook at that time. The 2008 Business Plan provided information on financial and economic studies that had been developed.

The Legislature included in the 2009/2010 Budget Act a requirement that the Authority submit a business plan document to the Legislature by December 15, 2009. Subsequent legislation signed into law requires the Authority to submit a revised business plan to the Legislature every 2 years. (Public Utilities Code, § 185033.)

The Authority prepared a Business Plan and submitted it to the Legislature in December 2009 to comply with the 2009/2010 Budget Act requirements. The content of the 2009 Business Plan included a general discussion of the HST system and anticipated ridership, revenues, project costs, and financing options. The 2009 Business Plan also included a discussion of risk that could jeopardize the project. The content

of the 2009 Business Plan was intended to address the specific issues identified by the Legislature in the 2009/2010 Budget Act and included a section at the end identifying how the required topics were addressed. In April 2010, the Authority submitted to the Legislature an addendum to the 2009 Business Plan with additional information to answer questions and issues raised by the Legislative Analyst's Office and legislative oversight bodies. As required by Public Utilities Code, § 185033, the Authority must submit a Business Plan to the Legislature on or before January 1, 2012, and every 2 years thereafter. The statute identifies the required content of future plans.

### **1.3.2 State-wide Program EIR/EIS**

The Authority and FRA completed a statewide Program EIR/EIS in November 2005 as the first phase of a tiered environmental review process for the proposed HST system. The Authority resolution (No. 05-01) approved the HST system as the program alternative. The HST system would use electrically propelled steel-wheel-on-steel-rail trains capable of maximum operating speeds of 220 mph (350 kph) on dedicated, fully grade-separated lines. In addition, the HST system would use design practices to avoid, minimize, and mitigate potential impacts.

### **1.3.3 Bay Area to Central Valley Study**

As part of the selection of the HST Alternative, the Authority and FRA defined a broad corridor between the Bay Area and Central Valley for additional review at the program level and directed staff to "prepare a separate program-level EIR to identify a preferred alignment within this broad corridor." This study region is generally bounded by (and includes) the Pacheco Pass (State Route 152 [SR 152]) to the south, the Altamont Pass (Interstate 580 [I-580]) to the north, the BNSF corridor to the east, and the Caltrain corridor to the west<sup>1</sup> (Figure 1).

### **1.3.4 Summary of the 2007 and 2008 Bay Area to Central Valley HST Program EIR Process**

Following certification of the statewide program EIR/EIS, the Authority and FRA initiated the program level Bay Area to Central Valley environmental review process in compliance with NEPA (42 U.S.C. § 4321 *et seq.*) and CEQA (Cal. Pub. Resources Code § 21000 *et seq.*). As the next phase of the tiered environmental review, the Program EIR/EIS further examines the Bay Area to Central Valley region. The Authority is the project sponsor and the lead agency for purposes of the state CEQA requirements (EIR). The FRA is the federal lead agency for compliance under NEPA (EIS).

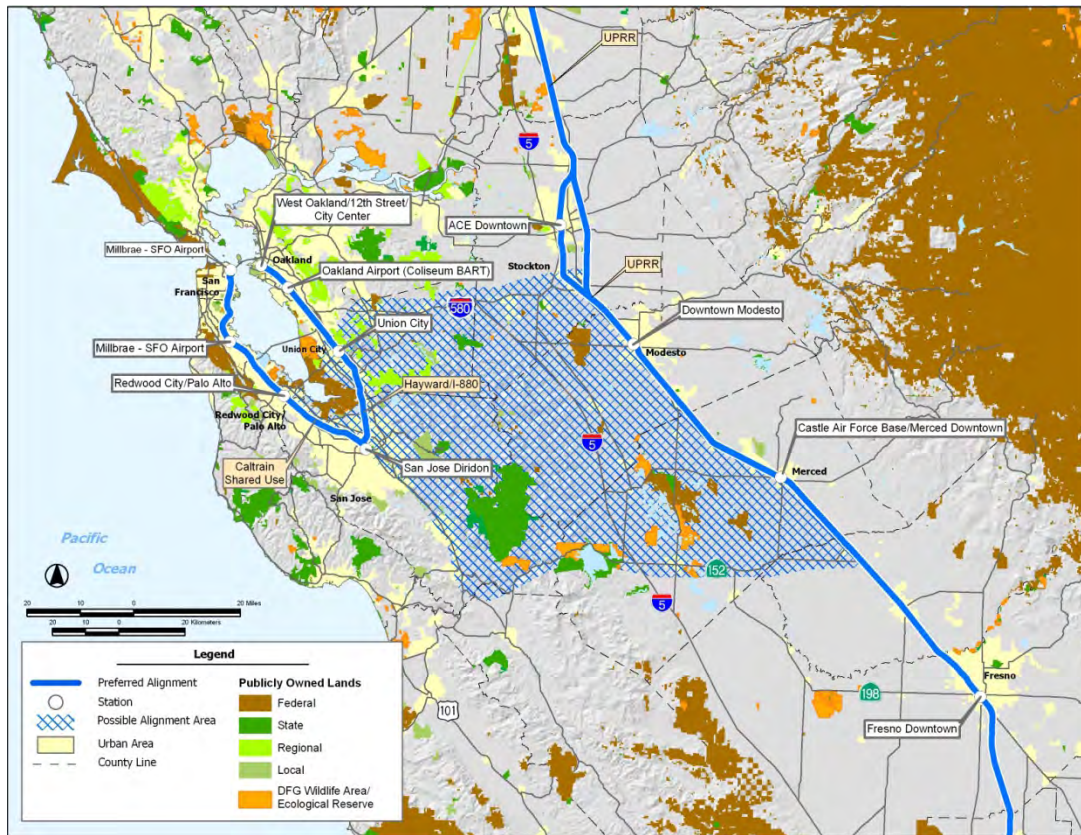
The Notice of Preparation (NOP) for the Bay Area to Central Valley HST Program EIR was released November 14, 2005. The Notice of Intent (NOI) was published in the Federal Register on November 28, 2005. The scoping process included 12 officially noticed agency and public scoping meetings in late November and early December 2005. Recognizing the important relationship of HST alignments and stations to a regional rail system in the northern California area, the HST scoping meetings were held in conjunction with public meetings on the San Francisco Bay Area Regional Rail Plan initiation meetings.

The Authority also held numerous meetings with and invited input from regional and local agencies in the region potentially affected by the proposed HST system. Meetings of the Authority governing board were also a forum for providing information about the environmental process. These meetings were held in major cities in the project area to provide a convenient opportunity for regional and local participation and input.

Comments received during this scoping process assisted the Authority and FRA in their review and evaluation of possible HST Alignment Alternatives and station location options and identification of those to be carried forward for environmental evaluation in the Program EIR.

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<sup>1</sup> Highway route numbers are provided only as a convenient reference for the reader, not as a limitation on the corridor to be considered.



**Figure 1. Bay Area to Central Valley Study Region**

The 2007 Draft Program EIR was released for public review and comment on July 16, 2007, and noticed in the *Federal Register* on July 20, 2007. The initial public comment period was scheduled to end September 28, 2007, but due to public requests, it was extended to October 26, 2007.

The public was informed of the 2007 Draft Program EIR release through distribution of an announcement of the document's availability to the project mailing list, containing approximately 3,600 statewide contacts, including federal, state, and local elected officials; federal, state, and local agency representatives; chambers of commerce; environmental and transportation organizations; special interest groups; media; private entities; and members of the public. The Program EIR was also made available for viewing and downloading at the Authority's web site, [www.cahighspeedrail.ca.gov](http://www.cahighspeedrail.ca.gov). The announcement and web site listed the libraries with a hard copy of the document available for review. The release of the 2007 Draft Program EIR was announced through display ads distributed in the following newspapers: *Sacramento Bee*, *Daily Republic*, *Oakland Tribune*, *San Francisco Examiner*, *San Jose Mercury News*, *Modesto Bee*, *Merced Sun Star*, *Fresno Bee*, and *Stockton Record*.

The Authority held eight public hearings throughout the Bay Area and northern California on the 2007 Draft Program EIR: San Francisco, San Jose, Oakland, Gilroy, Livermore, Merced, Stockton and Sacramento. 163 people provided oral testimony and 27 provided written comments at the hearings. There were 106 written letters and faxes received (1 from federal elected officials<sup>2</sup>, 8 from federal

<sup>2</sup> One letter signed by five federal elected officials of the U.S. Congress.



agencies, 4 from state elected officials<sup>3</sup>, 6 from state agencies, 11 from local elected officials, 21 from local agencies<sup>4</sup>, 22 from organizations<sup>5</sup>, and 34 from individuals), and 104 people provided comments on the Authority's website (1 from a state agency, 5 from local agencies, 15 from organizations, and 83 from individuals).

In addition to comments received through the public hearings, written comments on the 2007 Draft Program EIR were sent to the Authority in the form of letters and faxes, and were also sent through the Authority's website. Table 1 lists the number of those providing comments during the public comment period including those from the public hearings. More than 400 people provided over 1,300 comments from July 20, 2007, to October 26, 2007, during the circulation period (either through written letters or oral comments).

**Table 1. Comment Submittals on the 2007 Draft Program EIR**

Method of Comment Sub- mission	Federal		State		Local		Organization	Individual	Total
	Elected	Agency	Elected	Agency	Elected	Agency			
Public Hearings									
Oral Testimony	4	0	1	3	21	30	47	57	163
Written	2	0	1	2	3	6	1	12	27
Letters/Faxes	1	8	4	6	12	24	17	35	107
Web				1		5	15	83	104
Total	15		18		101		80	187	401

All comments submitted to the Authority during this review period are addressed and responded to in the 2008 Final Program EIR, Volume 3. The 2008 Final Program EIR evaluated the potential impacts of a full range of alignment alternatives and station location options in the study region and defined general mitigation strategies to address potentially significant adverse impacts. The 2008 Final Program EIR was made available to the public and public agencies on or about May 21, 2008, and notice of availability of the 2008 Final Program EIR was published in the Federal Register on May 30, 2008. In June 2008, the Authority issued an Addendum/Errata containing corrections to the 2008 Final Program EIR, that was included in the 2008 Final Program EIR.

#### A. AREAS OF CONTROVERSY

In considering a choice of alignment alternatives and station location options to form an HST network in the study region, the Authority has taken into account potential impacts on natural resources, cost, travel conditions, effects on travel time and ridership, and public and agency input. Other considerations include possible modifications to alignment alternatives by using more costly designs and construction techniques (e.g., tunnels and elevated guideways), or moving the location of alignments for functional or cost reasons or to avoid or minimize impacts on sensitive resources. The following were the identified principal areas of controversy in 2008:

<sup>3</sup> One letter signed by four state elected officials of the California Legislature.

<sup>4</sup> One letter signed by three local agencies.

<sup>5</sup> One letter representing comments of 10 organizations/agencies.

- Selection of an HST network with appropriate service to the Bay Area, including choice of mountain crossing, choice of alignments, location of stations, and number of stations directly served (see Chapters 2, 7, and 8 of the 2008 Final Program EIR).
- Impacts on biological resources and wildlife areas, particularly related to the San Francisco Bay Crossings and the Grassland Ecological Area (GEA) (see Section 3.15 and Chapter 8 of the 2008 Final Program EIR).
- Impacts on urban areas, mostly from noise and visual effects, community effects, and property impacts related to right-of-way acquisition (see Sections 3.4, 3.7, and 3.9 in the 2008 Final Program EIR).
- Growth (see Chapter 5 of the 2008 Final Program EIR)

The 2008 Final Program EIR evaluated alignment alternatives and station location options comprising representative networks for connecting the HST system in the Bay Area to the Central Valley study region. The alignment alternatives identified general locations for HST tracks, structures, and systems for the HST system between logical points within the Bay Area to Central Valley study region. To minimize potential environmental impacts from the HST system, the Authority's objective has been to maximize the use of existing transportation corridors and rights-of-way for the HST system. Consistent with this objective, extensive portions of the alignment alternatives were described and analyzed as if they were placed within or adjacent to existing rail or highway rights-of-way, rather than on new alignment. Evaluations for the previous Statewide Program EIR and for the 2008 Final Program EIR have consistently shown a potential for fewer significant environmental impacts along existing transportation facilities than on new alignments through both developed and undeveloped areas.

At the same time that the Authority has attempted to minimize environmental impacts by locating alignment alternatives within or adjacent to existing transportation rights-of-way, the EIR does not assume or rely on their availability for its analysis. The Authority is continuing an ongoing dialogue with UPRR in an effort to ensure the HST system is developed in a manner that is compatible with UPRR's freight operations. The result of those discussions could lead to cooperation between the Authority and UPRR for certain areas of the HST system.

Figures 2.3-6, 2.3-7, and 2.3-8 in the 2008 Final Program EIR depict typical cross sections for HST facilities at grade, on an elevated structure, and where twin tunnels might be necessary. These figures show maximum proposed rights-of-way of 100 feet, 50 feet, or 120 feet for these facilities, respectively. At the programmatic level, this EIR has analyzed the impacts of constructing and operating the HST system along the proposed alignment alternatives conservatively, by evaluating direct and indirect impacts within a wide band that exceeds the maximum proposed HST right-of-way, whether in an existing transportation right-of-way or adjacent to it. For example, for biological impacts, the EIR defines the study area for direct biological impacts as 50 feet on either side of the alignment, and for indirect impacts as 1,000 feet in urban areas and 0.25 mile in rural areas on each side of the alignment. At the project level, when detailed field conditions, resource data and site-specific facility design information become available, certain impacts disclosed in the program EIR are expected to be far less in those circumstances when the actual final footprint of HST track can be located within existing rights-of-way rather than adjacent to them.

### **1.3.5 Summary of the 2010 Bay Area to Central Valley HST Revised Program EIR Process**

In July 2008, the Authority certified the 2008 Final Program EIR for its compliance with the CEQA. The Authority then selected the Pacheco Pass Network Alternative Serving San Francisco via San Jose , preferred alignments, and preferred station locations for further study in project EIRs. The Authority also adopted a mitigation monitoring and reporting program and a statement of overriding considerations. The Authority took these actions in a duly noticed public meeting by adoption of Authority Resolution No. 08-01.



On August 8, 2008, the Town of Atherton, the Planning and Conservation League, the City of Menlo Park, the Transportation Solutions Defense and Education Fund, the California Rail Foundation, and the Bay Rail Alliance filed a lawsuit in the Superior Court for Sacramento County challenging the Authority's actions as being in violation of CEQA. (Town of Atherton, et al., v. California High-Speed Rail Authority, Sacramento Superior Court No. 34-2008-80000022.) Following extensive briefing in the case and a hearing on May 29, 2009, Judge Michael Kenny issued a ruling on August 26, 2009. A copy of the ruling is included as Appendix A to the Revised Final Program EIR. In that ruling, the Court concluded that the Authority's 2008 Final Program EIR failed to comply with CEQA in the following respects:

- *ADEQUACY OF PROJECT DESCRIPTION*: "The Court concludes that the description of the alignment of HSR tracks between San Jose and Gilroy was inadequate even for a programmatic EIR. The lack of specificity in turn results in an inadequate discussion of the impacts of the Pacheco alignment on surrounding businesses and residences which may be displaced, construction impacts on the Monterey Highway, and impacts on Union Pacific's use of its right-of-way and spurs and consequently its freight operations." (Ruling, p. 6.)
- *RECIRCULATION AFTER UNION PACIFIC RAILROAD ANNOUNCED ITS UNWILLINGNESS TO ALLOW USE OF ITS RIGHT-OF-WAY*: "[T]his Court concludes that various drawings, maps and photographs within the administrative record strongly indicate that [the Pacheco alignment is dependent upon the use of Union Pacific's right-of-way.] The record further indicates that if the Union Pacific right-of-way is not available, there may not be sufficient space for the right-of-way needed for the HST without either impacting the Monterey Highway or without the acquisition of additional amounts of residential and commercial property.

These are significant impacts which were sufficient to trigger recirculation of the FPEIR." (Ruling, pp. 19-20.)

- *LAND USE IMPACTS ALONG SAN FRANCISCO PENINSULA*: "As discussed elsewhere in this Court's ruling, Union Pacific has stated it is unwilling to allow its right-of-way to be used for the project. The need for acquiring additional property is a related issue that will be required to be analyzed in connection with further analysis of the impact of Union Pacific's denial of use of its right-of-way." (Ruling, pp. 15-16.)

The Court also held the Authority's CEQA finding on vibration impacts was not supported by substantial evidence. (Ruling, p. 14.) The Court rejected all other challenges to the content of the 2008 Final Program EIR raised in the litigation.

A final judgment was entered in the case on November 3, 2009, and the Court issued a peremptory writ of mandate on the same day. The judgment and writ directed the Authority to void its certification of the 2008 Final Program EIR, its approval of the Pacheco Pass Network Alternative, and its related approvals of CEQA findings, mitigation plan, and statement of overriding considerations. The writ also directed the Authority to comply with the judgment and with CEQA prior to taking any further action to certify the 2008 Final Program EIR.

On December 3, 2009, the Authority approved resolution HSRA 10-012 as the first step in complying with the court judgment and peremptory writ of mandate. This action rescinded the Authority's certification of the 2008 Final Program EIR and approval of the Pacheco Pass Network Alternative with San Francisco and San Jose Termini, preferred alignments, and preferred station locations for further study. The Authority's action also directed staff to prepare the necessary revisions to the program EIR and circulate them in accordance with CEQA for public comment.

## A. NOTIFICATION AND CIRCULATION OF THE REVISED DRAFT PROGRAM EIR MATERIAL

The Authority circulated a March 2010 Revised Draft Program EIR to comply with the final judgment in the *Town of Atherton* litigation on the 2008 Final Program EIR.

Notice regarding the availability and the circulation of the March 2010 Revised Draft Program EIR was provided pursuant to CEQA. The Revised Draft Program EIR was made available to the public through the Authority website ([www.cahighspeedrail.ca.gov](http://www.cahighspeedrail.ca.gov)) on March 4, 2010. Between March 8<sup>th</sup> and 12<sup>th</sup>, the Revised Draft Program EIR was distributed. Either a printed copy or a CD along with a Notice of Availability was sent to over 330 state and federal agencies, elected officials, Native American groups, other groups, and individuals who previously commented. In accordance with CEQA, a Notice of Completion was filed with the State Clearinghouse on March 11, 2010 initiating the required 45-day public comment period that extended to April 26, 2010. The Revised Draft Program EIR and a Notice of Availability and of a Public Meeting was also made available to 16 libraries for public viewing. The Notice of Availability and Notice of a Public Meeting was distributed to approximately 3,800 individuals on the program mailing list on March 12, 2010 and published in 8 newspapers throughout Bay Area and Central Valley including the San Francisco Examiner, Fresno Bee, San Jose Mercury News, Daily Republic, Merced Sun Star, Modesto Bee, Oakland Tribune, and Sacramento Bee. On March 15<sup>th</sup>, a Notice of Availability and Notice of a Public Meeting postcard was further distributed to over 50,000 individuals identified as part of on-going project-level engineering and environmental studies. On March 22, 2010, the Authority also made the Bay Area to Central Valley HST Revised Draft Program EIR Material References available through the Authority's website.

The Authority held two Public Meetings in San Jose on April 7, 2010 to receive comments from the public and public agencies on the Revised Draft Program EIR Material. One meeting was held in the morning from 10:00 a.m. to 12:00 p.m. at the Sheriff's Auditorium at 55 West Younger Avenue in San Jose, and one was held from 5:00 p.m. to 7:00 p.m. at the Santa Clara County Board of Supervisors Chambers at 70 West Hedding Street in San Jose. Hundreds of people attended the two public meetings and more than fifty individuals offered verbal comments.

## B. COMMENTS ON THE 2010 REVISED DRAFT PROGRAM EIR

Written comments on the Revised Draft Program EIR were sent to the Authority in the form of letters and faxes, and were also sent through the Authority's website. Comments from the two public meetings were transcribed as well. Table 2 lists the number of those providing comments during the public comment period including those from the public meetings. Some of the letters received listed multiple agencies or individuals. No comments were received from federal agencies. More than 540 people provided over 3,750 comments during the circulation period (either through written letters or oral testimony).

**Table 2. Comment Submittals on the 2010 Revised Draft Program EIR**

Type of Commenter	Number of Commenters	Number of Comments
State Agencies	2	21
Local Agencies	27	553
Organizations	25	265
Individuals	438	2,803
Public Hearings	53	113
<b>Total</b>	<b>545</b>	<b>3,755</b>

The verbal and written comments received during the public comment period addressed the broad spectrum of issues related to an EIR. Some comments addressed the revised and new materials in the 2010 Revised Draft Program EIR. Many other comments addressed the content of the May 2008 Final Program EIR. Most of the commenters expressed their views on the high-speed train project and the

selection of a network alternative to connect the Bay Area to the Central Valley. The comments and responses are included in Volume 2 of the 2010 Revised Final Program EIR.

### C. AREAS OF CONTROVERSY

A number of areas of controversy were identified as a result of the 2010 comment process for the Revised Draft Program EIR:

- Adequacy of the level of detail in the environmental analysis for programmatic decision-making process. See Chapter 12, Standard Responses 2 and 3, of the 2010 Revised Final Program EIR. Chapter 12, Standard Responses is included with this document as Attachment A.
- Selection of a network alternative for connecting the Bay Area to the Central Valley, including choice of mountain crossing, choice of alignments, location of stations, and number of stations directly served. See Chapters 7 and 12 (Standard Response 10 in Attachment A) of the 2010 Revised Final Program EIR.
- Land Use and community impacts along the Pacheco Pass Network Alternative serving San Francisco via San Jose, including concerns about noise, aesthetic impacts, and safety. See Chapters 2, 3, and 12 (Standard Responses 5, 6, and 7 in Attachment A) of the 2010 Revised Final Program EIR.
- The interface between HST and Union Pacific Railroad freight operations, including whether UPRR's unwillingness to allow use of its rights of way for HST render certain alignment alternatives infeasible, safety considerations, and the role of freight operations in the state and national economy. See Chapters 2, 3, 4, and 12 (Standard Response 9 in Attachment A) of the 2010 Revised Final Program EIR.
- Ridership Forecasts, including concerns about the validity of the ridership forecasts used in the 2008 Final Program EIR and the underlying model used to produce the forecasts. See Chapter 12, Standard Response 4 in Attachment A, of the 2010 Revised Final Program EIR.

## 1.4 Decision before the High-Speed Rail Authority

### 1.4.1 Project Purpose and Need

The purpose of the Bay Area to Central Valley HST is to provide a reliable high-speed electrified train system that links the major Bay Area cities to the Central Valley, Sacramento, and Southern California, and that delivers predictable and consistent travel times. Further objectives are to provide interfaces between the HST system and major commercial airports, mass transit, and the highway network and to relieve capacity constraints of the existing transportation system in a manner sensitive to and protective of the Bay Area to Central Valley region's and California's unique natural resources.

This purpose is consistent with recent expressions of federal transportation policy, most notably the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (Public L. 109-59; 119 Stat. 1144 [2005]), Transportation Equity Act for the 21st Century (TEA-21) (Pub. L. 105-178; 112 Stat. 107 [1998]), and its predecessor the Intermodal Surface Transportation Efficiency Act (ISTEA) (Pub. L. 102-240; 105 Stat. 1914 [1991]), which encourage public transportation investment that increases national productivity and domestic and international competition while improving safety and social and environmental conditions. Specifically, these policies encourage investments that offer benefits such as those listed below.

- Link all major forms of transportation.
- Improve public transportation systems and services.

- Provide better access to seaports and airports.
- Enhance efficient operation of transportation facilities and service.

The Authority's statutory mandate is to plan, build, and operate an HST system that is coordinated with the state's existing transportation network, particularly intercity rail and bus lines, commuter rail lines, urban rail transit lines, highways, and airports. The Authority has responded to this mandate by adopting the following objectives and policies for the proposed HST system.

- Provide intercity travel capacity to supplement critically over-used interstate highways and commercial airports.
- Meet future intercity travel demand that will be unmet by present transportation systems and increase capacity for intercity mobility.
- Maximize intermodal transportation opportunities by locating stations to connect with local transit, airports, and highways.
- Improve the intercity travel experience for Californians by providing comfortable, safe, frequent, and reliable high-speed travel.
- Provide a sustainable reduction in travel time between major urban centers.
- Increase the efficiency of the intercity transportation system.
- Preserve environmental quality and protect California's sensitive environmental resources by reducing emissions and vehicle kilometers/vehicle miles traveled for intercity trips.
- Consult with resource and regulatory agencies during the tier 1 environmental review and use all available information for identifying the alternative that is most likely to yield the least damaging practicable alternative by avoiding sensitive natural resources (e.g., wetlands, habitat areas, conservation areas) where feasible.
- Maximize the use of existing transportation corridors and rights-of-way, to the extent feasible.
- Develop a practical and economically viable transportation system that can be implemented in phases by 2020 and generate revenues in excess of operations and maintenance costs.

#### A. NEED FOR HIGH-SPEED TRAIN SYSTEM

##### Statewide Need

The capacity of California's intercity transportation system is insufficient to meet existing and future demand, and the current and projected future congestion of the system will continue to result in deteriorating air quality, reduced reliability, and increased travel times. The system has not kept pace with the tremendous increase in population and tourism in the state. The interstate highway system, commercial airports, and conventional passenger rail system serving the intercity travel market are currently operating at or near capacity and will require large public investments for maintenance and expansion in order to meet existing demand and future growth over the next 20 years and beyond. Moreover, the ability to expand many major highways and key airports is uncertain; some needed expansions may be impractical or may be constrained by physical, political, and other factors. Simply stated, the *need* for improvements serving intercity travel within California relates to the following issues.

- Future growth in demand for intercity travel.
- Capacity constraints that will result in increasing congestion and travel delays.

- Unreliability of travel stemming from congestion and delays, weather conditions, accidents, and other factors that affect the quality of life and economic well-being of residents, businesses, and tourism in California.
- Increasing frequency of accidents on intercity highways and passenger rail lines in congested corridors of travel.
- Reduced mobility as a result of increasing demand on limited modal connections between major airports, transit systems, and passenger rail in the state.
- Poor and deteriorating air quality and pressure on natural resources as a result of expanded highway and airports.

#### Regional Need

The needs of the Bay Area to Central Valley region are similar to those identified for the statewide HST system.

#### **Regional Growth**

Today, the nine-county Bay Area is home to nearly 7 million people and more than 3 million jobs. By 2050, the region's population is anticipated to grow by more than 40%, for a total of 10 million people. This population growth will put tremendous pressure on the existing transportation network, and the peak travel periods are expected to encompass many more hours of the day. For example, the Metropolitan Transportation Commission's (MTC's) 2000 San Francisco Bay Crossing Study projected the Bay Bridge peak period to more than double from 1.5 hours in 2000 to 3.5 hours by 2020.

Additionally, growth in the region is taking place in the form of dispersed land uses that rely on individual vehicles for most trips. Without improved and more extensive transit systems leading to the main Central Valley cities and connecting them to each other, there will be little chance for these cities to move toward compact transit-oriented development.

#### **Regional Congestion**

The Bay Area already experiences the second-worst traffic congestion in the country, after Los Angeles. Congestion is expected to worsen over the next 25 years, especially in existing hotspots. The combination of significant population growth, dispersed development patterns (requiring a car for most trips), highway facilities that cannot keep pace with traffic demands, and large increases in interregional commuting, has worsened and will continue to worsen congestion levels and the associated environmental and economic impacts.

#### **Economic Implications**

The adverse economic impacts of congestion and inadequate transportation/transit access are already apparent. The 150,000 daily hours of Bay Area commute congestion had an estimated cost of \$2.6 billion in 2003 alone. When transportation access to urban and suburban centers becomes too difficult, employers are likely to move jobs to areas where land prices are lower and workers' commutes might be shorter. Without better passenger rail access, major job growth will continue to decentralize and move to places like the Central Valley.

#### **Environmental Implications**

Without an expanded rail and transit network and more compact development, there may be greater adverse effects on the natural environment. More than 400,000 acres (ac) (161,874 hectares [ha]) of land in the Bay Area are at risk from development. Promoting development in walkable communities near HST, intermodal, and other transit stations offers the best opportunity for taking development pressure off open space and farms. Demand for an additional 550,000 homes near transit in the Bay Area by 2030 is anticipated, but transit-oriented development functions well only

when transit service is sufficiently frequent and reliable that residents can reduce the length and the number of car trips they take.

An additional growing environmental concern is global climate change, and the transportation sector is responsible for about 40% of greenhouse gas emissions in California and up to 50% in the Bay Area. Because these emissions are directly proportional to the amount of fuel burned, offering effective and efficient transportation choices can result in reduced driving and reduced emissions.

#### 1.4.2 Policy Level Nature of Decision and Tiering

The proposed HST system in the Bay Area to Central Valley corridor is subject to environmental review under CEQA, and the Authority is both the project sponsor and lead agency for CEQA compliance. The Authority determined that a Program EIR was the appropriate CEQA document for the project at this conceptual stage of planning and decision-making, which includes selecting a preferred alignment and station locations.

Because of possible funding and regulatory action, the FRA is the lead federal agency, working with the Authority as the lead state agency, for the environmental review required by NEPA and related statutes. The FRA determined that preparation of a tier 1, program-level EIS for the proposed HST system in the Bay Area to Central Valley corridor was the appropriate NEPA document because of the conceptual stage of planning and decision-making. Decisions related to advancing and ultimately constructing the proposed HST system could constitute major federal actions requiring environmental review under NEPA for several federal agencies in addition to the FRA, including the Federal Highway Administration (FHWA), U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers (USACE), Federal Aviation Administration (FAA), U.S. Fish and Wildlife Service (USFWS), and Federal Transit Administration (FTA). The EPA and USACE were the federal cooperating agencies for the Program EIR/EIS.

No permits are being sought in this phase of environmental review. After selection of preferred alignments and station locations in the Bay Area to Central Valley corridor and completion of the program environmental process, project-specific environmental documentation will be prepared to assess in more detail the impacts of the preferred alignment and station locations options. Preparation of a program-level document followed by more detailed project-specific documents that *tier*<sup>6</sup> off the program document offers a number of advantages. As described in Council on Environmental Quality (CEQ) regulations (40 CFR § 1508.28), FHWA Guidelines (23 CFR Part 771; 52 FR § 32646 [August 1987]), and the State CEQA Guidelines (14 CCR § 15168[b]), this approach offers the following advantages:

- More exhaustive consideration of impacts and alternatives than would be practical in an individual or project-specific EIR/EIS.
- Consideration of cumulative impacts that might be slighted in a case-by-case analysis.
- An opportunity for decision-makers to consider broad policy alternatives and program-level mitigation strategies at an early stage, when the flexibility to incorporate them is greater.
- Ability to avoid reconsideration of policy issues in subsequent documents.
- Early coordination with USACE and EPA to identify avoidance and minimization opportunities that are likely to yield or will lead to the selection of a least environmentally damaging practicable alternative (LEDPA) under Section 404 of the Clean Water Act (CWA).
- Less paperwork by encouraging the reuse of data through incorporation by reference in subsequent tiered documents.

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<sup>6</sup> *Tiering* refers to a multilevel approach where a first tier environmental document analyzes general matters and subsequent tiers analyze narrower projects/actions, referencing the more general document.



Program or first-tier EIRs or EISs are deliberately focused on the “big picture” impacts of proposed decisions. A program EIR/EIS and a revised program EIR are informational documents intended to analyze and to disclose to the public and to public decision-makers the environmental effects and benefits of a proposed program and its alternatives. Tiering assists the Authority and FRA in focusing on issues that are ripe for decision at each state of environmental review and in excluding from consideration issues that have already been decided or deferring those that are not ready for decision.

The Authority and the FRA have intentionally tailored the scope of this environmental analysis to the conceptual nature of the proposed decisions, consistent with the concept of tiering in both NEPA and CEQA. As a programmatic document, the Revised Program EIR (which includes the Program EIR/EIS) does not analyze detailed, site-specific impacts of future projects to construct sections of the HST system, nor does it purport to be able to identify all of the detailed impacts of each alignment or station location option. Rather, it focuses on identifying and describing key differences in potential impacts for each of the alternatives. More detailed analyses will be provided in future project-level environmental documents.

The Bay Area to Central Valley HST Revised Final Program EIR is specifically designed to assist the Authority in making the fundamental choice of a preferred alignment within the broad corridor between and including the Altamont Pass and Pacheco Pass for the HST segment connecting the San Francisco Bay Area to the Central Valley. In selecting alignments and station locations, the Authority will not be selecting a precise footprint for improvements, but rather a conceptual corridor alignment subject to further refinement. Future tiered project-level environmental documents will assess the impacts of constructing and implementing individual HST projects for sections of the HST system and will examine specific project location alternatives for the selected corridor alignment and alternative station sites for the selected location options, utilizing design practices described in the Revised Final Program EIR to avoid and minimize impacts to the greatest extent possible. These second-tier documents will concentrate on issues specific to the individual project being considered and site(s) chosen for the action before construction can be initiated.

The environmental reviews and initial studies for site-specific, second-tier projects can incorporate by reference the discussions in the program environmental documents, and “concentrate on the environmental effects which (a) are capable of being mitigated, or (b) were not analyzed as significant effects on the environment in the prior environmental impact report.” (Public Resources Code section 21068.5.)

The Revised Final Program EIR, Volumes 1 and 2, was prepared under the supervision and direction of the Authority and the 2008 Program EIR/EIS was prepared under the supervision and direction of both the Authority and the FRA in conjunction with other federal agencies and with input from state and local agencies. It is intended that other federal, state, regional, and local agencies use the Revised Program EIR to review the proposed program and develop expectations for the project-level (tier 2) environmental reviews that would follow selection of the preferred HST alignment and station locations in the Bay Area to Central Valley corridor.

Methods of impact evaluation for the project were developed with input from both state and federal resource agencies. Due to the sheer number and length of the alignment alternatives and the number of station location options being considered, detailed field surveys and extensive evaluations of affected resources were not practical or necessary for the Revised Program EIR. The lists and tables of resources proximate to alignment alternatives and station location options served to adequately portray the overall potential impacts in a manner that allowed for a comparison of the key differences.

The preparation of the 2007 Draft and 2008 Final Program EIR was coordinated with the concurrent preparation of a Bay Area Regional Rail Plan by a coalition of the San Francisco Bay Area Rapid Transit District (BART), the Metropolitan Transportation Commission (MTC), the Peninsula Corridor Joint Powers

Board (Caltrain), and the Authority. Bay Area voters in 2004 passed Regional Measure 2, which required MTC to adopt a Regional Rail Plan. As stipulated in the Streets and Highways Code Section 30914.5 (f), the Regional Rail Plan defined the future passenger rail transportation network for the nine-county San Francisco Bay Area, including an evaluation of the HST options. Information on the Regional Rail Plan is available at [www.bayarearailplan.info](http://www.bayarearailplan.info).

### **1.4.3 Elements of the Decision Process**

#### **A. CERTIFICATION AND COMPLIANCE WITH CEQA**

At the time of its decision on the Revised Final Program EIR, CEQA requires the Authority, as the lead agency, to take various actions.

##### CEQA Certification

Before approving a network alternative, alignment alternatives, and station location options, the Authority must certify that (1) the Revised Final Program EIR has been prepared in compliance with CEQA; (2) the Revised Final Program EIR has been presented to, and reviewed and considered by, the Authority; and (3) the Revised Final Program EIR reflects the Authority's independent judgment and analysis as the lead agency. (Pub. Resources Code § 21100; CEQA Guidelines § 15090.)

##### Adoption of Findings

If an EIR identifies one or more significant effects on the environment that would occur as a result of the proposed program, the Authority must make one of three findings with respect to each significant effect (Public Resources Code § 21081(a); CEQA Guidelines § 15091):

- Changes have been made to the project, or incorporated into the project, which mitigate or avoid the identified significant effects on the environment.
- Those changes or alterations (i.e., mitigation measures) are within the responsibility and jurisdiction of another public agency, and have been or can and should be adopted by that other agency.
- The agency finds that the mitigation measures or alternatives are infeasible for specific "economic, legal, social, technological, or other considerations."

##### Overriding Considerations

If significant effects cannot be mitigated to a less-than-significant level, the Authority must also adopt findings indicating the specific overriding economic, legal, social, technological, or other benefits of the project which are viewed as outweighing each of the significant adverse effects. (Pub. Resources Code § 21081(b).)

##### Adoption of Project to be Carried Forward

If the Authority's certifies the Revised Final Program EIR for compliance with CEQA, it then has discretion to approve a network alternative to be carried forward into the project-level review, including alignment alternatives and station location options.

##### Adoption of Mitigation Monitoring Program Plan Report

Section 21081.6 of CEQA requires public agencies to adopt a reporting or monitoring program whenever a project or program is approved that includes mitigation measures identified in an environmental document.



### Filing of Notice of Determination

Finally, after (i) certifying the Revised Final Program EIR, (ii) adopting findings, as described above, (iii) incorporating as conditions of approval feasible mitigation measures to reduce significant adverse environmental impacts, and (iv) adopting a statement of overriding considerations for any expected remaining significant adverse environmental effects, and if an approval decision is made, the Authority would direct the filing of a Notice of Determination with the Governor's Office of Planning and Research. (CEQA Guidelines § 15094.)

### B. FRA—RECORD OF DECISION AND COMPLIANCE WITH NEPA

At the time of its decision, NEPA requires the FRA to prepare a "concise public record of decision." (40 Code of Federal Regulations (CFR) § 1505.2.) The FRA issued its Record of Decision (ROD) for the 2008 Final Program EIS on December 2, 2008. The ROD issued by the FRA is available at <http://www.cahighspeedrail.ca.gov/library.asp?p=8052>

## **1.5 Range of Alternatives Studied**

### **1.5.1 Description of HST System**

The proposed HST system selected in the statewide program EIR/EIS (Authority and FRA 2005) and further analyzed in the Bay Area to Central Valley Program EIR/EIS (Authority and FRA 2008) and the 2010 Revised Program EIR is electrified steel-wheel-on-steel-rail dedicated service, with a maximum speed of 220 mph (350 kph). A fully grade-separated, access-controlled right-of-way would be constructed and in some areas would share tracks at lower speeds with other compatible passenger rail services. Shared-track operations would use existing rail infrastructure in areas where construction of new separate HST facilities would not be feasible. Although shared service would reduce the flexibility and capacity of HST service because of the need to coordinate schedules, it would also result in fewer environmental impacts and a lower construction cost.

### **1.5.2 Identification of Bay Area to Central Valley Alignment Alternatives and Station Location Options**

Informed by previous studies and the scoping process, the Authority and the FRA evaluated potential HST Alignment Alternatives in the study region and defined those that best meet the project purpose (see Section 1.4.1 of this report), which is *to provide a reliable high-speed electrified train system that links the major Bay Area cities to the Central Valley, Sacramento, and Southern California, and that delivers predictable and consistent travel times. Further objectives are to provide interfaces between the HST system and major commercial airports, mass transit and the highway network and to relieve capacity constraints of the existing transportation system in a manner sensitive to and protective of the Bay Area's and California's unique natural resources.* The study region is shown in Figure 1.

### A. SCREENING PROCESS

The Authority and FRA conducted a screening evaluation to identify potential alignment alternatives and station location options that are anticipated to be practicable, reasonable, and feasible for further consideration in the program environmental process. The screening evaluation included the following activities:

- Review of alignment alternatives and station location options identified in previous studies in the study region.
- Identification of alignment alternatives and station location options not previously evaluated.
- Evaluation of alignment alternatives and station location options using standardized engineering, environmental, and financial criteria and evaluation methodologies.

- Evaluation of alignment alternatives and station location options against defined objectives.

## B. PERFORMANCE CRITERIA

The alignment and station-screening evaluation was combined with public and agency input that together provided the Authority and the FRA with the necessary information to identify a reasonable range of alignment, station location, and HST corridor options. The evaluation of potential HST Alignment Alternatives and station location options within viable corridors used the following standardized criteria:

- **Construction:** Substantial engineering and construction complexity as well as excessive initial and/or recurring costs were considered criteria for project impracticability because they present logistical constraints.
- **Environment:** A high potential for considerable impacts to natural resources including water resources, streams, floodplains, wetlands, and habitat of threatened or endangered species was considered a criterion for failing to meet project objectives.
- **Land Use Compatibility:** Substantial incompatibility with current or planned local land use as defined in local plans was considered a criterion for failing to meet project objectives.
- **Right-of-Way:** A lack of available right-of-way or extensive right-of-way needs that would result in excessively high acquisition costs for a corridor, technology, alignment, or station was considered criteria for project impracticability.
- **Connectivity/Accessibility:** Limited connectivity with other transportation modes (aviation, highway, or transit systems) that would impair the service quality and could reduce ridership of the HST system was considered a criterion for failing to satisfy the project purpose.
- **Ridership/Revenue:** Longer trip times or suboptimal operating characteristics that would result in low ridership and revenue were considered criteria for failing to satisfy the project purpose.

Table 3 presents the relationship of objectives and criteria applied in the screening evaluation. The objectives and criteria used in this evaluation represent further refinement of those used in previous studies and incorporated the HST system performance goals and criteria. Alignment alternatives and station location options were considered and compared based on these established objectives and criteria.

**Table 3. High-Speed Rail Alignment and Station Evaluation Objectives and Criteria**

Objective	Criteria
Maximize ridership/revenue potential	<ul style="list-style-type: none"> <li>• Travel time</li> <li>• Length</li> <li>• Population/employment catchment area</li> </ul>
Maximize connectivity and accessibility	<ul style="list-style-type: none"> <li>• Intermodal connections</li> </ul>
Minimize operating and capital costs	<ul style="list-style-type: none"> <li>• Length</li> <li>• Operational issues</li> <li>• Construction issues</li> <li>• Capital cost</li> <li>• Right-of-way issues/cost</li> </ul>
Maximize compatibility with existing and planned development	<ul style="list-style-type: none"> <li>• Land use compatibility and conflicts</li> <li>• Visual quality impacts</li> </ul>

Objective	Criteria
Minimize impacts on natural resources	<ul style="list-style-type: none"> <li>• Water resources impacts</li> <li>• Floodplain impacts</li> <li>• Wetland impacts</li> <li>• Threatened and endangered species impacts</li> </ul>
Minimize impacts on social and economic resources	<ul style="list-style-type: none"> <li>• Environmental justice impacts (demographics)</li> <li>• Farmland impacts</li> </ul>
Minimize impacts on cultural and parks/wildlife refuge resources	<ul style="list-style-type: none"> <li>• Cultural resources impacts</li> <li>• Parks and recreation impacts</li> <li>• Wildlife refuge impacts</li> </ul>
Maximize avoidance of areas with geologic and soils constraints	<ul style="list-style-type: none"> <li>• Soils/slope constraints</li> <li>• Seismic constraints</li> </ul>
Maximize avoidance of areas with potential hazardous materials	<ul style="list-style-type: none"> <li>• Hazardous materials/waste constraints</li> </ul>

At the screening stage, some alignment alternatives and station location options were considered and removed from further study.

- For most of the alignment alternatives and station location options not carried forward in the program environmental process, failure to meet the general project purpose and objectives and practicability constraints were the primary reasons for elimination.
- Environmental criteria were considered a reason for elimination when an alignment alternative or station location option had considerably more probable environmental impacts than other practicable alignment alternatives or station location options for the same corridor.
- General project purpose and objectives were considered in terms of ridership potential, connectivity and accessibility, incompatibility with existing or planned development, and severe operational constraints.
- Practicability constraints were considered in terms of cost, constructability, right-of-way constraints, and other technical issues. To assess the constructability of tunnels, some specific thresholds were established to help guide the evaluation. Continuous tunnel lengths of more than 12 mi (19 km) were considered impracticable, and the crossing of major fault zones at grade was also identified as a necessary criterion. For other practicability considerations (e.g., right-of-way constraints, construction issues, costs) thresholds could not be established for this program-level evaluation and impracticability was determined based on professional judgment.

### 1.5.3 Bay Area to Central Valley Alignment Alternatives and Station Location Options Evaluated in the Revised Final Program EIR

The alignment alternatives and station location options evaluated in the Revised Final Program EIR (which includes the 2008 Final Program EIR, are shown in Figure 2 and described as part of this section. Proposed HST Alignment Alternatives are generally configured along or adjacent to existing rail transportation facilities, instead of creating new transportation corridors. Although a wide range of options have been considered, the Authority's initial conceptual approach, previous corridor evaluations, and the evaluation conducted as part of the program environmental process have consistently shown a potential for fewer substantial environmental impacts along existing highway and rail facilities than on new alignments through both developed and undeveloped areas. Although increasing the overall width of existing facilities could have potential impacts on the amount of land disturbed similar to those of creating new facilities, creating new facilities would also introduce potential incompatibility and severance issues in both urban communities and rural settings (farmlands, open spaces).

The station location options described in this section were identified generally and represent the most likely sites based on current knowledge, consistent with the objective to serve the state's major population centers. There is a critical tradeoff between accessibility of the system to potential passengers and the resulting HST travel times (i.e., more closely spaced stations will lengthen the travel times for local service as well as express services). The station locations shown here are spaced approximately 50 mi (80 km) apart in rural areas and 15 mi (24 km) apart in the metropolitan areas. Additional or more closely spaced stations would negatively affect travel times and the ability to operate both express and local services. Several key factors were considered in identifying potential station stops, including speed, cost, local access times, potential connections with other modes of transportation, ridership potential, and distribution of population and major destinations along the route. The ultimate locations and configurations of stations cannot be determined until the project-level environmental process has been completed.

As part of the development of the *Bay Area Regional Rail Plan*, some HST Alignment Alternatives were considered for regional rail "overlay" services that would be implemented by other transportation agencies in cooperation with the Authority. Overlay services would involve operating regional commuter trains on the HST infrastructure and serving additional non-HST regional rail stations. These regional rail stations and services are not integral to the HST system and are not alternatives in the 2008 Program EIR/EIS; however, they are considered in the 2008 Final Program EIR cumulative analysis of HST Alignment Alternatives as related but separate potential projects.

The alignment alternatives and station location options analyzed in the Revised Program EIR and including the 2008 Final Program EIR are shown in Figure 2.



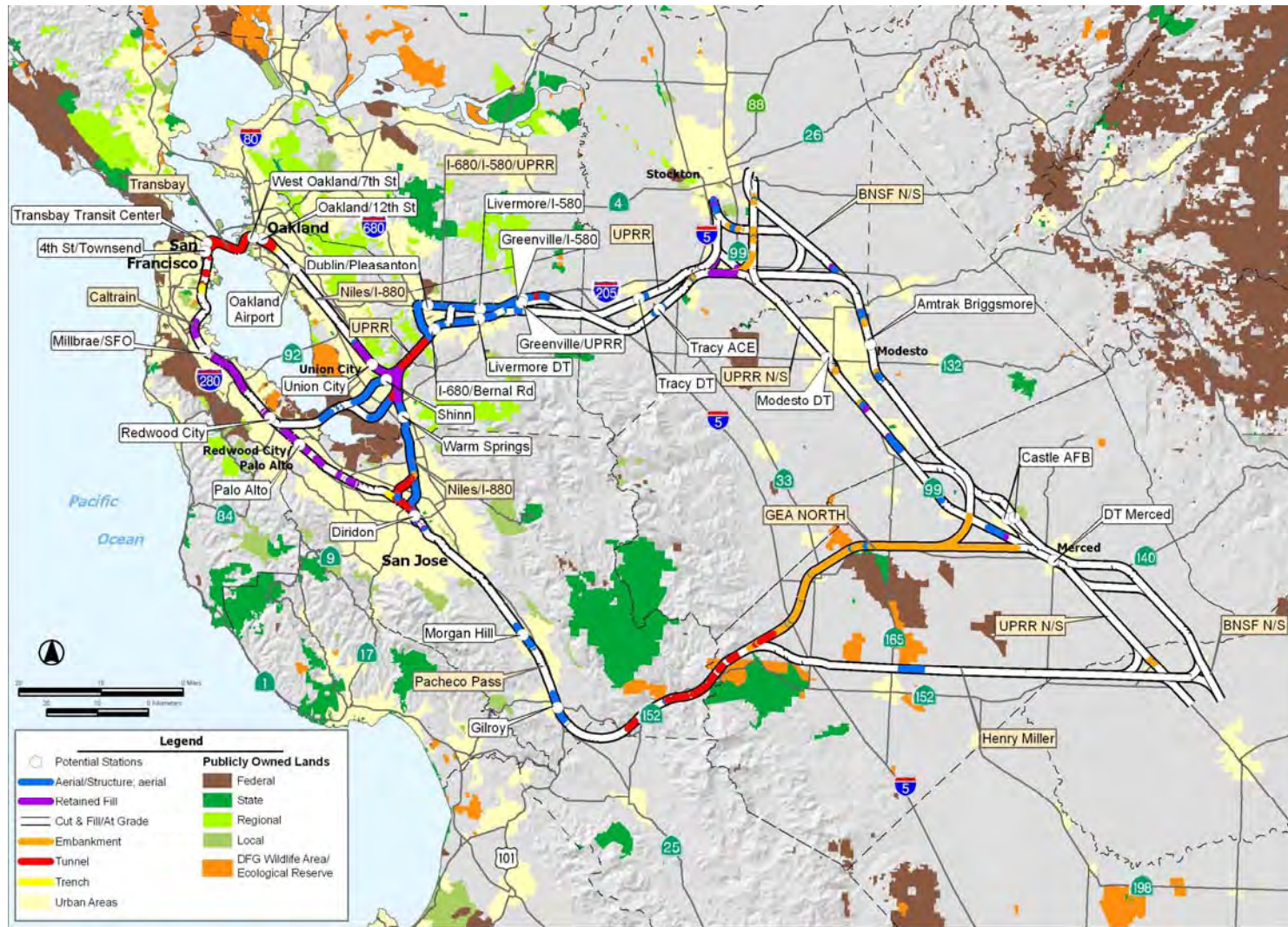


Figure 2. Alignment Alternatives and Station Location Options



Conceptual designs were developed for all of the alignment alternatives and station location options. These designs are illustrated in plan and profile sheets (Appendix 2-D), cross sections (Appendix 2-E), and station fact sheets (Appendix 2-F) of the 2008 Final Program EIR, and in Chapters 2 and 3 of Volume 1 of the 2010 Revised Final Program EIR. Conceptual designs are based on *Engineering Criteria* (Authority and FRA 2004). A map illustrating the horizontal alignment and profile type (aerial, at grade, or tunnel) are shown in Figure 3.

The relation of each of the alignment alternatives to other existing transportation facilities is also a key aspect of the conceptual designs. Figure 4 illustrates the alignment characteristics (relation to existing corridors and proposed configurations) for the alignment alternatives.

In response to the final judgment in the *Town of Atherton* case, Chapter 3 of the Revised Final Program EIR discusses the relationship of the proposed HST alignment alternatives in the Bay Area to Central Valley study area to Union Pacific Railroad freight tracks. Figure 5 illustrates the alignments alternatives with no proximity to UPRR-owned right of way, those assumed to only be adjacent to UPRR-owned right of way (due to narrow freight right of way), and those that were assumed to have some potential to be either in or adjacent to UPRR-owned right of way. To facilitate the analysis of alignment alternatives and station location options in the Program EIR, the study area was divided into six corridors within the study region.

- San Francisco to San Jose.
- Oakland to San Jose.
- San Jose to Central Valley.
- East Bay to Central Valley.
- San Francisco Bay Crossings.
- Central Valley Alignment.

Alignment Alternatives and station location options within these corridors are identified below.

#### San Francisco to San Jose Alignment Alternatives

- Caltrain Alignment (Shared-Use Four-Track): From San Francisco, this alignment alternative would follow south along the Caltrain rail alignment to Dumbarton and from there to San Jose. This alignment alternative assumes that the HST system would share tracks with Caltrain commuter trains. The entire alignment would be grade separated. Station location options would include a station in the lower level of the proposed new Transbay Transit Center in San Francisco or a station at 4th and King Streets, a station in Millbrae to serve SFO, and a station in either Redwood City or Palo Alto. The Caltrain shared-use alignment would take advantage of the existing rail infrastructure and would be mostly at-grade.

#### **Station Location Options**

##### *San Francisco*

- Transbay Transit Center: This potential station location would serve the Caltrain shared-use alignment as a downtown terminal station.
- 4th and King (Caltrain): This potential station location would serve the Caltrain shared-use four-track alignment as a downtown terminal station.

##### *San Francisco International Airport*

- Millbrae: This potential station would serve as a connection with SFO.





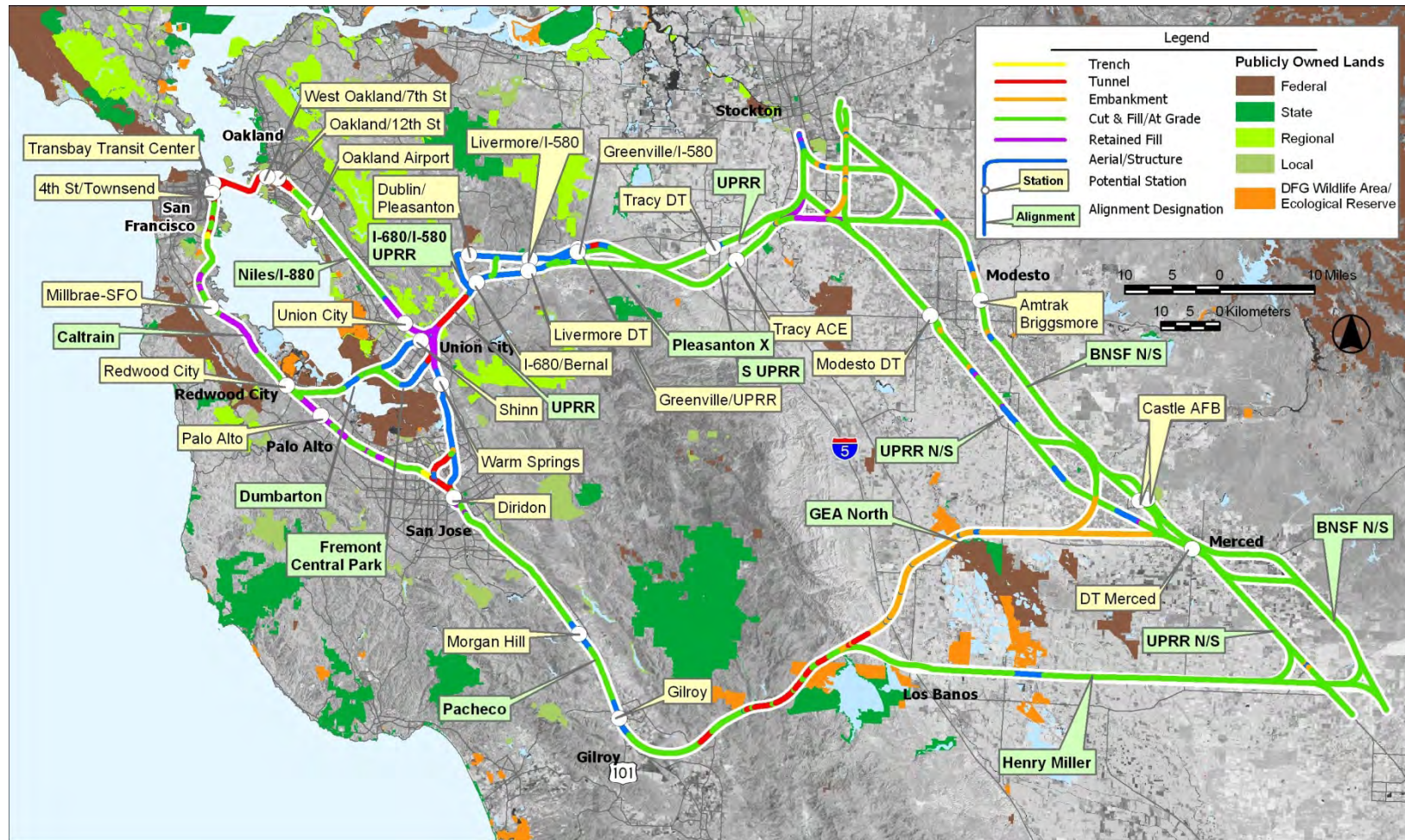


Figure 3. Alignment Profile Characteristics





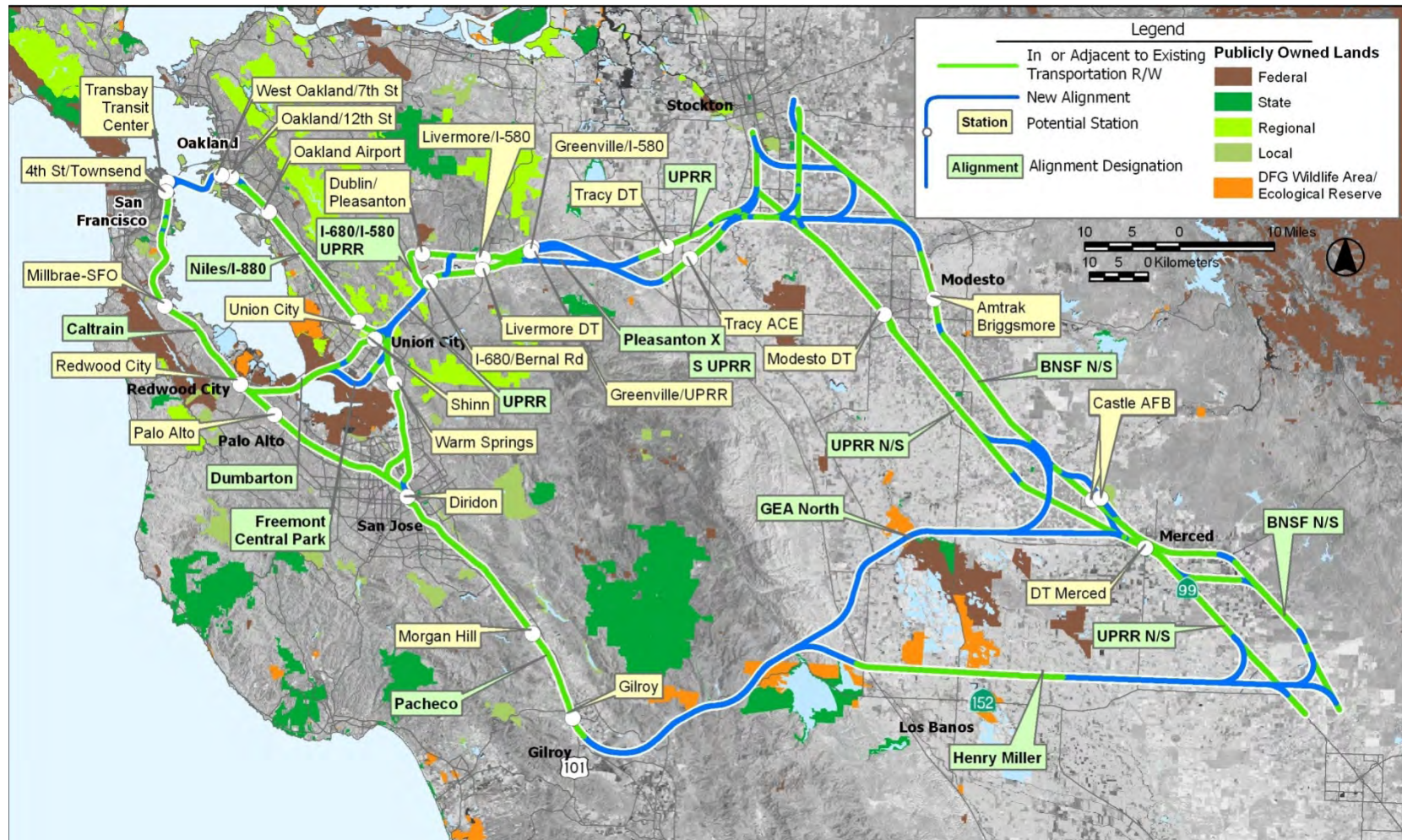


Figure 4. Relationship of Alignments to Major Transportation Facilities





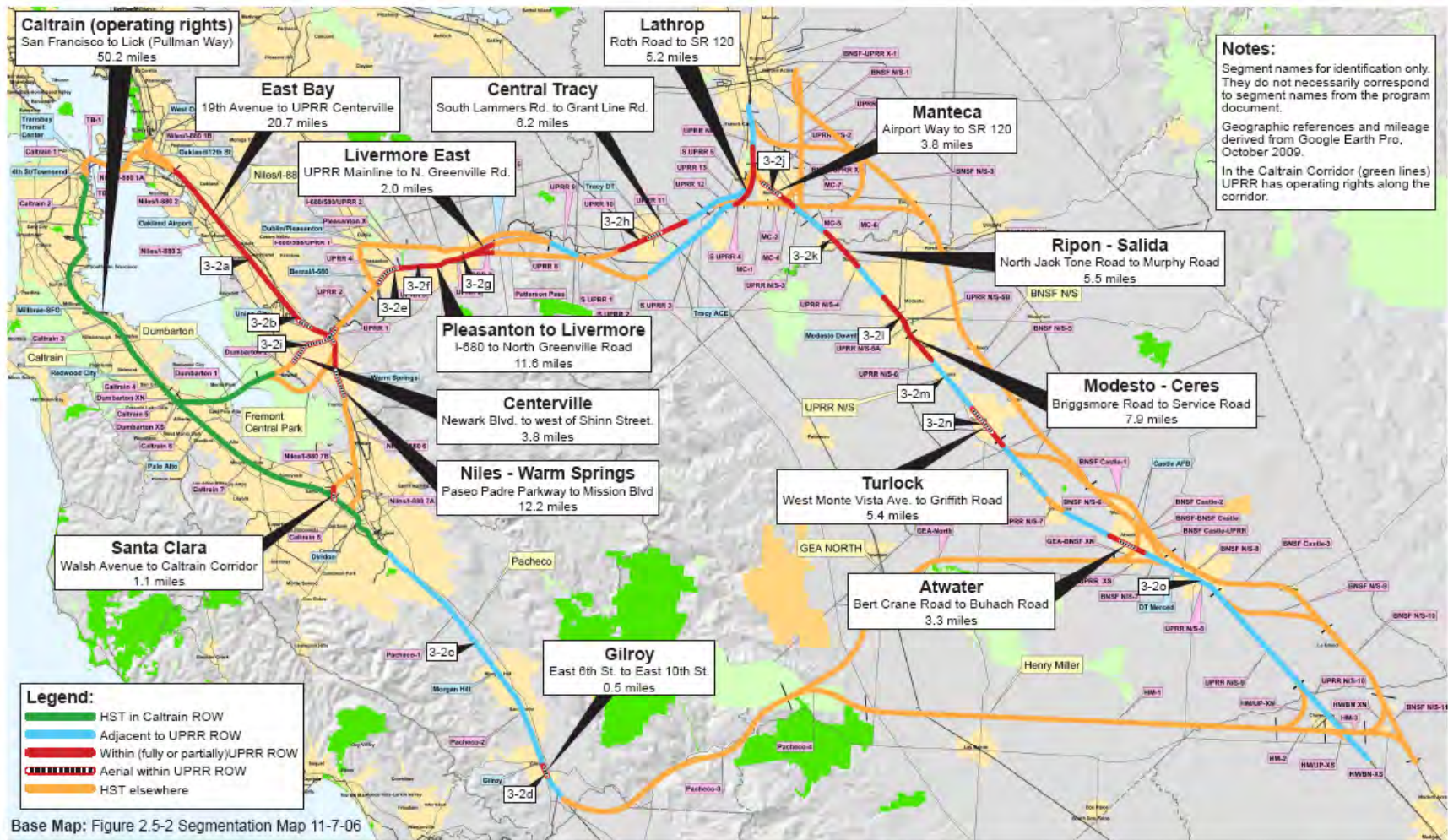


Figure 5. UPRR Interface Locations



#### *Mid-Peninsula*

- Redwood City (Caltrain): This potential station location would provide accessibility and serve the population between San Jose and San Francisco.
- Palo Alto (Caltrain): This potential station location would provide accessibility and serve the population between San Jose and San Francisco.

#### Oakland to San Jose Alignment Alternatives

- Niles Subdivision Line to I-880 (Niles/I-880): From Oakland, this alignment alternative would travel south following the UPRR's Niles Subdivision Line (i.e., Hayward Line) transition to the UPRR's Warm Springs Subdivision (Milpitas Line) at Niles Junction and then transition to the I-880. Station location options include Oakland, Oakland Airport and Union City (BART) or Fremont (Warm Springs).

The alignment would be at-grade along the Niles Subdivision Line and on an aerial structure in the median of I-880. The I-880 HST portion would mostly be on an aerial configuration from Fremont to San Jose. This alignment would require the construction of columns and footings in the wide median of I-880.

- Niles Subdivision Line to I-880 to Trimble Road (Niles/I-880/Trimble Rd.): From Oakland, this alignment alternative would travel south following the UPRR's Niles Subdivision Line (i.e., Hayward Line), transition to the UPRR's Warm Springs Subdivision (Milpitas Line) at Niles Junction and then transition to I-880 and then to Trimble Road. Station location options include Oakland, Oakland Airport, and Union City (BART) or Fremont (Warm Springs).

The alignment would be at-grade along the Niles Subdivision Line and on an aerial structure in the median of I-880. The I-880 HST portion would mostly be on an aerial configuration from Fremont to San Jose. The Trimble Road segment would be on an aerial structure and in a tunnel (where adjacent to San Jose International Airport). This alignment would require the construction of columns and footings in the wide median of I-880.

#### **Station Location Options**

##### *Oakland*

- West Oakland: This potential station location would serve Oakland the Niles/I-880 Alignment.
- 12th Street/City Center: This potential station location would serve Oakland from the Niles/I-880 Alignment

##### *Oakland International Airport*

- Coliseum/Airport BART Station: This potential station location would serve the Oakland Airport from the Niles/I-880 Line.

##### *Southern Alameda County*

- Union City (BART): This potential station location would serve the population centers between Oakland and San Jose from the Niles/ I-880 Line.
- Fremont (Warm Springs): This potential station location would serve the population centers between Oakland and San Jose from the Niles/ I-880 Line.

#### San Jose to Central Valley Alignment Alternatives

##### *Pacheco Pass Alignments*

- Caltrain/Pacheco/Henry Miller Avenue: This alignment alternative would extend south along the Caltrain/UPRR rail corridor through the Pacheco Pass and then the San Joaquin Valley. From San Jose to Lick (a point near Pullman Way in San Jose), the alignment would be located within the

Caltrain-owned right-of-way. From Lick to Gilroy, the alignment would be located adjacent to and on the east side of UPRR's mainline right-of-way, using portions of the Monterey Highway right-of-way between San Jose and north of Morgan Hill. From north of Morgan Hill to Gilroy, the alignment would be adjacent to and on the east side of the UPRR mainline right-of-way. Station location options include the existing San Jose (Diridon) Station and Gilroy (near the existing Caltrain Station) or Morgan Hill (near the existing Caltrain Station).

- Caltrain/Pacheco/GEA North/Merced: This alignment alternative would extend south along the Caltrain/UPRR rail corridor through the Pacheco Pass, pass through the northern portion of the Grasslands Ecological Area (GEA) and then across the San Joaquin Valley. From San Jose to Lick (a point near Pullman Way in San Jose), the alignment would be located in the Caltrain-owned right-of-way. From Lick to Gilroy, the alignment would be located adjacent to and on the east side of UPRR's mainline right-of-way, using portions of the Monterey Highway right-of-way between San Jose and north of Morgan Hill. From north of Morgan Hill to Gilroy, the alignment would be adjacent to and on the east side of the UPRR mainline right-of-way. Station location options include the existing San Jose (Diridon) Station and Morgan Hill (near the existing Caltrain Station) or Gilroy (near the existing Caltrain Station).

### **Station Location Options**

#### *San Jose*

- San Jose (Diridon): This potential station location would serve all alignments (Caltrain/Monterey Highway rights-of-way) out of San Jose.

#### *South Santa Clara County*

- Morgan Hill (Caltrain): This potential station location would serve all the Pacheco Pass alignment alternatives.
- Gilroy (Caltrain): This potential station location would serve all the Pacheco Pass alignment alternatives.

### **East Bay to Central Valley Alignment Alternatives**

#### *Altamont Pass*

- UPRR: This alignment alternative would extend east via a relatively direct routing (mostly in tunnel) between Niles Junction and I-680 then use the UPRR alignment through Pleasanton and Livermore before transitioning to the I-580 corridor through the Altamont Pass to Tracy. Station location options include the Pleasanton (Bernal/I-680) Station, Livermore (near downtown), or Livermore (Greenville Rd.) and Tracy (downtown) or Tracy (ACE).
- I-580/UPRR: This alignment alternative would extend east via a relatively direct routing (mostly in tunnel) between Niles Junction and I-680 then use the UPRR alignment through Pleasanton before transitioning to the I-580 corridor through Livermore and the Altamont Pass to Tracy. Station location options include the Pleasanton (Bernal/I-680) Station, Livermore (I-580), or Livermore (Greenville Rd.) and Tracy (downtown) or Tracy (ACE).
- I-580/I-680/UPRR: This alignment alternative would extend east via a relatively direct routing (mostly in tunnel) between Niles Junction and I-680 then use the I-680 alignment before transitioning I-580 corridor (at the I-580/I-680 junction). Station location options include the Pleasanton (BART) Station, Livermore (I-580), or Livermore (Greenville Rd.) and Tracy (downtown) or Tracy (ACE).
- Patterson Pass/UPRR: This alignment alternative would extend east via a relatively direct routing (mostly in tunnel) between Niles Junction and I-680 then use the UPRR alignment through Pleasanton and Livermore before transitioning to the I-580 corridor through the Patterson Pass



between Livermore and Tracy. Station location options include the Pleasanton (Bernal/I-680) Station, Livermore (near downtown), and Tracy (downtown) or Tracy (ACE).

### **Station Location Options**

#### *Tri-Valley*

- Pleasanton (I-680/Bernal Road): This potential station location would serve the Altamont I-580/UPRR alignment alternative and the Altamont UPRR alignment alternative.
- Pleasanton (BART): This potential station location would serve the Altamont I-580/I-680/UPRR alignment alternative.
- Livermore (Downtown): This potential station location would serve the Altamont UPRR alignment alternative.
- Livermore (I-580): This potential station location would serve the Altamont I-580/I-680/UPRR alignment alternative and the Altamont I-580/UPRR alignment alternative.
- Livermore (Greenville Road/UPRR): This potential station location would serve the Altamont UPRR alignment alternative.
- Livermore (Greenville Road/I-580): This potential station location would serve the Altamont I-580/I-680/UPRR alignment alternative and the Altamont I-580/UPRR alignment alternative.

#### *Tracy*

- Tracy (Downtown): This potential station location would serve all Altamont Pass alignment alternatives.
- Tracy (ACE): This potential station location would serve all Altamont Pass alignment alternatives.

### **San Francisco Bay Crossings Alignment Alternatives**

- New Transbay Tube: This alignment alternative would connect the Oakland (West Oakland or 12th Street City Center) and San Francisco (Transbay Transit Center or 4th and King) HST stations via a new transbay tube. This alignment alternative could serve either Altamont Pass or Pacheco Pass alignment alternatives.
- Dumbarton Rail Crossing (Centerville): This alignment alternative would serve the Altamont Pass alignment alternatives and link the East Bay to the Peninsula in the vicinity of the existing Dumbarton Rail Bridge. Between Niles Junction and the Dumbarton Bridge, this alignment would use the Centerville rail alignment. Possible designs for this alignment include use of an improved Dumbarton Rail Bridge (low level), a new high-level bridge, and a new transbay tube.
- Dumbarton Rail Crossing (Fremont Central Park): This alignment alternative would serve the Altamont Pass alignment alternatives and link the East Bay to the Peninsula in the vicinity of the existing Dumbarton Rail Bridge. Between Niles Junction and the Dumbarton Bridge, this alignment would use an existing utility alignment and a new alignment through the Don Edwards Natural Wildlife Refuge. This alignment would require tunneling under Fremont Central Park. Possible designs for this alignment include use of an improved Dumbarton Rail Bridge (low level), a new high-level bridge, and a new transbay tube.

### **Station Location Options**

#### *Southern Alameda County*

- Union City (Shinn): This potential station would serve the population centers between Oakland and San Jose only for Altamont Pass (East Bay to Central Valley) alignment alternatives using the Dumbarton Rail Crossing (Centerville) connection to the San Francisco Peninsula.

### Central Valley Alignment Alternatives

- **BNSF Rail Line:** This alignment alternative would connect with either the Altamont or Pacheco Pass alignment alternatives. This north-south alignment would link the Bay Area to Central Valley population centers, Sacramento, and southern California. Station location options include Modesto (Briggsmore) and Merced (Downtown and Castle AFB).
- **UPRR Line:** This alignment alternative would connect with either the Altamont or Pacheco Pass alignment alternatives. This north-south alignment would link the Bay Area to Central Valley population centers, Sacramento, and southern California. Station location options include Modesto (Downtown) and Merced (Downtown and Castle AFB).

### **Station Location Options**

#### *Modesto*

- **Downtown Modesto:** This potential station location would serve the Altamont Pass and Pacheco Pass alignment alternatives using the UPRR alignment alternative.
- **Briggsmore (Amtrak):** This potential station location would serve Altamont Pass and Pacheco Pass alignment alternatives using the BNSF alignment alternative.

#### *Merced*

- **Downtown Merced:** This potential station location would serve all Altamont Pass and Pacheco Pass alignment alternatives.
- **Castle AFB:** This potential station would serve all Altamont Pass and Pacheco Pass alignment alternatives.

### **1.5.4 Design Practices**

Design practices have been and will continue to be applied to the identified HST alignments. Key aspects of the design practices include (i.e., are not limited to) the following:

- Minimize impact footprint and associated direct impacts on farmland, parkland, biological, and water resources through maximum use of existing transportation corridors.
- Minimize impact associated with growth effects through the selection of multi-modal transportation hubs for potential HST station locations that would maximize access and connectivity as well as provide efficient (transit-oriented) growth centered on these station locations.
- Minimize impact on farmlands and associated growth through the selection of multi-modal transportation hubs for potential HST station locations that would maximize access and connectivity as well as provide for efficient (transit-oriented) growth centered on these station locations.
- Increase safety and circulation and potentially reduce air pollution and noise impacts, through use of grade separation at road crossings, of considerable portions of adjacent existing services with construction of the planned HST system.
- Pursue agreements with owners/rail operators to place the HST alignment within existing rail rights-of-way, where feasible, to reduce the need for additional right-of-way and minimize potential impacts on agricultural resources and other natural resources.
- Cooperate with regulatory agencies to develop acceptable specific design and construction standards for stream crossings, including (i.e., not limited to) maintaining open surface (bridged versus closed culvert) crossings, infrastructure setbacks, erosion control measures, sediment-controlling excavation/fill practices, and other best management practices.

- Fully line tunnels with impermeable material to prevent infiltration of groundwater or surface waters to the extent possible based on available geologic information and previous tunneling projects in proximity to proposed tunnels.
- Where there is potential for significant barrier effects that could divide wildlife populations or habitat areas or impede wildlife migration corridors, underpasses or overpasses or appropriate passageways will be designed during project-level environmental review for implementation at reasonable intervals during construction to avoid, minimize, or mitigate potential impacts on wildlife movement.
- The potential impacts associated with construction access roads would be greatly limited, and avoided altogether through sensitive areas (as defined at the project level), by using in-line construction (i.e., by using the new rail infrastructure as it is built to transport equipment to and from the construction site and transporting excavated materials away from the construction area to appropriate reuse [e.g., as fill material, aggregate for new concrete] or disposal sites). To avoid creating access roads in sensitive areas (as defined at the project level), necessary geologic exploration would be conducted using helicopter transport for drilling equipment to minimize surface disruption, followed by site restoration on the completion of work.
- HST alignments will be designed so as not to be located on UPRR operating rights-of-way where feasible. HST alignments will be grade separated from UPRR rights-of-way at those locations where HST alignments would need to cross over or under UPRR operating rights-of-way.
- HST alignments will be designed to minimize impacts to existing UPRR business-serving spurs where feasible. The Authority will work with UPRR to identify those locations where design of the HST alignment may affect these business-serving spurs and evaluate with UPRR the following options, and other options that UPRR may present: grade-separate HST alignment (trench, tunnel, or aerial) from the UPRR spur; reconstruct the spur if possible so as to reduce or eliminate the impact of HST operations on existing freight; the Authority will negotiate with UPRR and consider such options as may be suggested by UPRR to accommodate individual freight customer needs.

### 1.5.5 Mitigation Strategies

The Revised Final Program EIR (including the 2008 Final Program EIR) identifies general mitigation *strategies* that the Authority and the FRA will consider and refine into specific mitigation *measures* in future project-level CEQA and NEPA environmental documents. This approach is consistent with the concept of tiering. Where, as here, a lead agency is analyzing the environmental impacts of a broad decision at a landscape level, it would be premature to develop precise mitigation *measures*, which will need to be tailored to the type of “on the ground” impacts anticipated for constructing or operating specific portions of the HST system.

The mitigation strategies, along with project design practices (noted in Section 1.5.4 of this report) lay out actions that will be taken to avoid or reduce identified impacts. The strategies were identified to avoid or minimize significant adverse environmental effects. The mitigation strategies identified have been applied to projects throughout the State, country, Europe, and Japan and have been shown to be effective, which is in fact the reason they are included in the Revised Final Program EIR (including the 2008 Final Program EIR). The adopted strategies will be enforceable and capable of being accomplished in a successful manner within a reasonable period of time. As part of the approval of the project and certification of the Revised Final Program EIR, these strategies are included in the mitigation monitoring and reporting plan (MMRP) to be adopted by the Authority Board. Likewise the MMRP will be incorporated in the Record of Decision issued by the FRA. Once adopted, the MMRP will be enforceable under CEQA, committing the Authority to these strategies.

Detailed site-specific mitigation measures can and will be defined during the project-level EIR/EIS phase, following more detailed preliminary engineering and field reviews focused on the alternative selected at the program level. The mitigation strategies will be used to develop appropriate mitigation measures to address site-specific impacts identified at the project level.

For instance, use of noise walls is a mitigation strategy for noise impacts. The appropriate locations, lengths, height, and design of these walls will be defined during the preliminary engineering and project-level environmental review, when detailed field studies are performed. This example applies to all mitigation strategies in the Revised Final Program EIR (including the 2008 Final Program EIR), and is fully consistent with typical project planning and the environmental review requirements. Mitigation measures are refined as the planning and engineering progress from the conceptual to preliminary to final project design phases. For example, the exact location, length, and materials used for noise walls may change even between preliminary and final design.

As the planning and engineering process progresses, and as project elements are more precisely defined, further review of project impacts occurs to assure that impacts are still being mitigated to the extent feasible and that no new significant impacts are introduced. Environmental laws and implementing requirements prescribe the procedures to be followed should new significant impacts be revealed.

### 1.5.6 Network Alternatives Evaluated in the Revised Final Program EIR

To review and evaluate a HST system in the study region as a part of a statewide system, HST Network Alternatives were identified representing different ways to combine the HST Alignment Alternatives and station location options provided in Section 1.5.3 of this report. Several operating scenarios for combinations of alignment alternatives and terminus stations were investigated, with HST Network Alternatives ranging from one to three termini (San Francisco, Oakland, and San Jose) for direct HST service to the Bay Area. The representative network alternatives are grouped into three basic approaches for linking the Bay Area and Central Valley: Altamont Pass (11 network alternatives), Pacheco Pass (6 network alternatives), and Pacheco Pass with Altamont Pass (local service) (4 network alternatives).

The network alternatives were developed to enable an evaluation and comparison of how various combinations of alignment alternatives would meet the project's purpose and need and how each would perform as an HST network (e.g., travel times between various station locations, anticipated ridership, operating and maintenance costs, energy consumption, and auto trip diversions). Representative network alternatives are shown in Table 4. Maps of and extensive summary data about the network alternatives are presented in Chapter 7 of the 2008 Final Program EIR and Chapter 6 of the 2010 Revised Final Program EIR, and important differences are identified to inform decision makers and the public.

**Table 4. Summary Table of Representative High-Speed Train Network Alternatives**

Network Alternative	Alignment Included
<b>Altamont Pass</b>	
San Francisco and San Jose Termini	<ul style="list-style-type: none"> <li>• Caltrain Corridor (San Francisco to Dumbarton)</li> <li>• Dumbarton (High Bridge)<sup>1</sup></li> <li>• Niles/I-880 (Niles Junction to San Jose via I-880)<sup>2</sup></li> <li>• East Bay Connection (Dumbarton/Niles XS)</li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>

Network Alternative	Alignment Included
Oakland and San Jose Termini	<ul style="list-style-type: none"> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)<sup>2</sup></li> <li>• East Bay Connections (Dumbarton/Niles XN and Dumbarton/Niles XS)</li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>
San Francisco, Oakland, and San Jose Termini	<ul style="list-style-type: none"> <li>• Caltrain Corridor (San Francisco to Dumbarton)</li> <li>• Dumbarton (High Bridge)<sup>1</sup></li> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)<sup>2</sup></li> <li>• East Bay Connections (Dumbarton/Niles XN and Dumbarton/Niles XS)</li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>
San Jose Terminus	<ul style="list-style-type: none"> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)<sup>2</sup></li> <li>• East Bay Connection (Dumbarton/Niles XS)</li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>
San Francisco Terminus	<ul style="list-style-type: none"> <li>• Caltrain Corridor (San Francisco to Dumbarton)</li> <li>• Dumbarton (High Bridge)<sup>1</sup></li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>
Oakland Terminus	<ul style="list-style-type: none"> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• East Bay Connection (Dumbarton/Niles XN)</li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>
Union City Terminus	<ul style="list-style-type: none"> <li>• Niles /I-880(Union City BART to Niles Junction)</li> <li>• East Bay Connection (Dumbarton/Niles XN)</li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>
San Francisco and San Jose – via SF Peninsula	<ul style="list-style-type: none"> <li>• Caltrain Corridor (San Francisco to Dumbarton)</li> <li>• Caltrain (Dumbarton to San Jose)</li> <li>• Dumbarton (High Bridge)</li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>
San Francisco, San Jose, and Oakland – with no San Francisco Bay Crossing	<ul style="list-style-type: none"> <li>• Caltrain Corridor (San Francisco to Dumbarton)</li> <li>• Caltrain (Dumbarton to San Jose)</li> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)<sup>2</sup></li> <li>• East Bay Connections (Dumbarton/Niles XN and Dumbarton/Niles XS)</li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>

Network Alternative	Alignment Included
Oakland and San Francisco – via Transbay Tube	<ul style="list-style-type: none"> <li>• Transbay Crossing – Transbay Transit Center</li> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• East Bay Connection (Dumbarton/Niles XN)</li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>
San Jose, Oakland, and San Francisco – via Transbay Tube	<ul style="list-style-type: none"> <li>• Transbay Crossing – Transbay Transit Center</li> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)<sup>2</sup></li> <li>• East Bay Connections (Dumbarton/Niles XN and Dumbarton/Niles XS)</li> <li>• UPRR (Niles to Altamont)</li> <li>• Tracy Downtown (UPRR Connection)</li> <li>• UPRR (Central Valley)</li> </ul>
<b>Pacheco Pass</b>	
San Francisco and San Jose Termini	<ul style="list-style-type: none"> <li>• Caltrain Corridor (San Francisco to Dumbarton)</li> <li>• Caltrain (Dumbarton to San Jose)</li> <li>• Pacheco (San Jose to Western Valley)</li> <li>• Henry Miller (Western Valley to BNSF/UPRR)</li> <li>• Henry Miller UPRR Connection</li> <li>• BNSF – UPRR</li> </ul>
Oakland and San Jose Termini	<ul style="list-style-type: none"> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)</li> <li>• Pacheco (San Jose to Western Valley)</li> <li>• Henry Miller (Western Valley to BNSF/UPRR)</li> <li>• Henry Miller UPRR Connection</li> <li>• BNSF – UPRR</li> </ul>
San Francisco, Oakland, and San Jose Termini	<ul style="list-style-type: none"> <li>• Caltrain Corridor (San Francisco to Dumbarton)</li> <li>• Caltrain (Dumbarton to San Jose)</li> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)</li> <li>• Pacheco (San Jose to Western Valley)</li> <li>• Henry Miller (Western Valley to BNSF/UPRR)</li> <li>• Henry Miller UPRR Connection</li> <li>• BNSF – UPRR</li> </ul>
San Jose Terminus	<ul style="list-style-type: none"> <li>• Pacheco (San Jose to Western Valley)</li> <li>• Henry Miller (Western Valley to BNSF/UPRR)</li> <li>• Henry Miller UPRR Connection</li> <li>• BNSF – UPRR</li> </ul>
San Jose, San Francisco, and Oakland – via Transbay Tube	<ul style="list-style-type: none"> <li>• Transbay Crossing – Transbay Transit Center</li> <li>• Caltrain Corridor (San Francisco to Dumbarton)</li> <li>• Caltrain (Dumbarton to San Jose)</li> <li>• Pacheco (San Jose to Western Valley)</li> <li>• Henry Miller (Western Valley to BNSF/UPRR)</li> <li>• Henry Miller UPRR Connection</li> <li>• BNSF – UPRR</li> </ul>

San Jose, Oakland, and San Francisco – via Transbay Tube	<ul style="list-style-type: none"> <li>• Transbay Crossing – Transbay Transit Center</li> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)</li> <li>• Pacheco (San Jose to Western Valley)</li> <li>• Henry Miller (Western Valley to BNSF/UPRR)</li> <li>• Henry Miller UPRR Connection</li> <li>• BNSF – UPRR</li> </ul>
<b>Pacheco Pass with Altamont Pass (Local Service)</b>	
San Francisco and San Jose Termini	<ul style="list-style-type: none"> <li>• Caltrain Corridor (San Francisco to Dumbarton)</li> <li>• Caltrain (Dumbarton to San Jose)</li> <li>• Dumbarton (High Bridge)</li> <li>• UPRR (Niles to Altamont)<sup>3</sup></li> <li>• Tracy Downtown (UPRR Connection)<sup>4</sup></li> <li>• UPRR (Central Valley)</li> <li>• Pacheco (San Jose to Western Valley)</li> <li>• Henry Miller (Western Valley to BNSF/UPRR)</li> <li>• Henry Miller UPRR Connection</li> </ul>
Oakland and San Jose Termini	<ul style="list-style-type: none"> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)</li> <li>• East Bay Connections (Dumbarton/Niles XN &amp; Dumbarton/Niles XS)</li> <li>• UPRR (Niles to Altamont)<sup>3</sup></li> <li>• Tracy Downtown (UPRR Connection)<sup>4</sup></li> <li>• UPRR (Central Valley)</li> <li>• Pacheco (San Jose to Western Valley)</li> <li>• Henry Miller (Western Valley to BNSF/UPRR)</li> <li>• Henry Miller UPRR Connection</li> </ul>
San Francisco, Oakland, and San Jose Termini (without Dumbarton Bridge)	<ul style="list-style-type: none"> <li>• Caltrain Corridor (San Francisco to Dumbarton)</li> <li>• Caltrain (Dumbarton to San Jose)</li> <li>• Niles /I-880(West Oakland to Niles Junction)</li> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)</li> <li>• East Bay Connections (Dumbarton/Niles XN and Dumbarton/Niles XS)</li> <li>• UPRR (Niles to Altamont)<sup>3</sup></li> <li>• Tracy Downtown (UPRR Connection)<sup>4</sup></li> <li>• UPRR (Central Valley)</li> <li>• Pacheco (San Jose to Western Valley)</li> <li>• Henry Miller (Western Valley to BNSF/UPRR)</li> <li>• Henry Miller UPRR Connection</li> </ul>
San Jose Terminus	<ul style="list-style-type: none"> <li>• Niles /I-880 (Niles Junction to San Jose via I-880)<sup>2</sup></li> <li>• East Bay Connection (Dumbarton/Niles XS)</li> <li>• UPRR (Niles to Altamont)<sup>3</sup></li> <li>• Tracy Downtown (UPRR Connection)<sup>4</sup></li> <li>• UPRR (Central Valley)</li> <li>• Pacheco (San Jose to Western Valley)</li> <li>• Henry Miller (Western Valley to BNSF/UPRR)</li> <li>• Henry Miller UPRR Connection</li> </ul>
<p>1 Does not include Dumbarton Wye South to Caltrain segment.</p> <p>2 Does not include Niles Junction to Niles Wye South (Niles/I-880 5A) segment.</p> <p>3 Does not include “express tracks” through Pleasanton station.</p> <p>4 Does not include “express tracks” through Tracy station.</p>	



## C. SUMMARY COMPARISON OF NETWORK ALTERNATIVES

Table 5 presents the characteristics and potential impacts for the 21 representative network alternatives. The impact quantities provided are prior to any mitigation. A more extensive presentation of characteristics and potential impacts is provided in Chapter 7 of the 2008 Final Program EIR and Chapter 6 of the 2010 Revised Final Program EIR.

In addition, the network alternatives have the potential to reduce overall air pollution, total energy consumption, and traffic congestion as compared to the No Project Alternative. Comparing the energy required by each mode to carry a passenger 1 mile (1.6 km), an HST needs only about one-third that required by an airplane and one-fifth that required by a commuter automobile trip. Comparing the pollutant burden generated by each mode to carry a passenger 1 mile (1.6 km), an HST generates approximately less than one-tenth of the pollutants (excluding CO<sub>2</sub>) that would be generated by an airplane or by a commuter automobile trip. The representative base HST forecast would result in a reduction of 5.8 million barrels of oil and 3.4 million tons (6.8 billion pounds) of CO<sub>2</sub> emissions annually by 2030, as compared to the No Project Alternative. Diversions from the automobile to HST could lead to a projected 2.3% statewide reduction in vehicle miles traveled (VMT on the highway system), with VMT reductions of 1.75% and 8% in Bay Area and Central Valley counties for all of the network alternatives. To further reduce air emissions and non-renewable energy consumption, the Authority Board adopted a policy on September 3, 2008 to power the HST with clean renewable energy, making it the first true zero-emission train in the world.

## 1.6 Preferred Alignment and Station Locations

In December 2007, Authority staff presented a recommendation to the Board on designation of the Pacheco Pass Network Alternative serving San Francisco via San Jose as the preferred alternative in the 2008 Final Program EIR. This recommendation, which the Board concurred in, reflected a host of

Different system characteristics, as well as environmental factors, of the network alternatives have been examined in the program EIR. Chapter 8 of the 2008 Final Program EIR describes the preferred HST Network and Alignment Alternatives and station options as well as the evaluation of Network Alternatives that supported the identification of the preferred alternative, shown in Figure 6.

The Revised Draft and Final Program EIRs contain new and revised information, as well as a significant additional set of public comments, that has been considered in the current designation of the preferred network alternative. Chapter 7 of the Revised Final Program EIR discusses the new and revised information and concludes that it does not alter the recommendation of the Pacheco Pass Network Alternative serving San Francisco via San Jose as preferred. The following discussion describes the preferred HST Alignment and station location options and briefly summarizes the new and revised information from the Revised Final Program EIR.

The analysis in the Revised Final Program EIR suggests that while UPRR's position denying use of its rights-of-way for HST track would result in an increased need for property acquisition beyond that originally anticipated in some areas, the increased need would be orders of magnitude less for the Pacheco Pass Network Alternative Serving San Francisco via San Jose than for Altamont Pass Network Alternatives with similar service to two major cities. This is the case because the alignment alternatives involved in the Pacheco Pass Network Alternative serving San Francisco via San Jose have comparatively fewer areas that were identified as involving a potential use of UPRR rights-of-way than for the Altamont Network Alternatives. UPRR's position denying use of its rights-of-way for HST tracks presents a greater implementation challenge for the Altamont Pass network alternatives than for the Pacheco Pass Network Alternative serving San Francisco via San Jose.

### **1.6.1 San Francisco to San Jose: Caltrain Corridor (Shared Use)**

The Program EIR/EIS analyzes one alignment option between San Francisco and San Jose along the San Francisco Peninsula that would utilize the Caltrain rail right-of-way and share tracks with express Caltrain commuter rail services.

Information in the Revised Final Program EIR indicates that property impacts between San Francisco and San Jose would be higher than previously disclosed in the 2008 Final Program EIR. Although this alignment alternative utilizes an existing, publicly owned rail right of way, and property acquisition would be limited, more private property acquisition would be required than previously understood. Land use compatibility, while considered comparatively high, would still be a significant impact under CEQA, as explained in the 2008 Final Program EIR, and would require mitigation.

#### **A. PREFERRED STATION LOCATIONS**

- Downtown San Francisco Terminus: Transbay Transit Center
- The Transbay Transit Center would offer the greatest connectivity and accessibility to San Francisco and the Bay Area, best serve as a regional transit hub, and have the highest ridership potential. It also has considerable agency and public support
- San Francisco Airport Connector Station: Millbrae (SFO)
- The Millbrae (SFO) HST station supports the objectives of the HST project by providing an interface with the northern California hub airport for national and international flights.
- Mid-Peninsula Station: Continue to investigate both potential sites and work with local agencies and the Caltrain JPB to determine whether a mid-peninsula station site should be developed.
- The Palo Alto and Redwood City station options would both be multi-modal stations, with similar costs, construction issues, right-of-way issues, and potential environmental impacts. The Palo Alto station option would have somewhat better connectivity and higher ridership, while the Redwood City site is supported by the City of Redwood City.

### **1.6.2 San Jose to Central Valley**

Pacheco Pass via Henry Miller Road (UPRR Connection) is the preferred alternative. At the project level, however, the Authority and the FRA will continue to seek and evaluate alignment alternatives utilizing the Pacheco Pass that would minimize or avoid impacts on resources in the GEA.

The 2008 Final Program EIR describes that, in addition to other mitigation strategies and measures, the Authority commits to the acquisition from willing sellers by the Authority, or by other entities designated and supported by the Authority, of agricultural, conservation and/or open space easements encompassing at least 10,000 ac (4,047 ha) and generally located along or in the vicinity of the HST alignment and within or adjacent to the designated GEA. This measure would reduce impacts to and support conservation of wetlands and sensitive ecological areas, as well as limit urban encroachment in the vicinity of the HST through the GEA. The focus for these easements would be in areas undergoing development pressures, such as the areas around Los Banos and Volta, and/or areas that would be most appropriate for ecological conservation or restoration. The eventual locations and total acreage for these easements would be determined in conjunction with the project-level environmental analysis and decisions addressing the Gilroy to Merced portion of the HST system and in consultation with the CDFG, the USFWS, and the Grassland Water District. To further minimize impacts to wetlands, sensitive habitat, and wildlife movement, about 3-miles of the alignment along Henry Miller Road would be elevated.

Table 5. Summary Table

Characteristic/Impacts	Altamont Pass											Pacheco Pass						Pacheco Pass with Altamont Pass (local service)			
	San Francisco & San Jose Termini	Oakland & San Jose Termini	San Francisco, Oakland & San Jose Termini	San Jose Terminus	San Francisco Terminus	Oakland Terminus	Union City Terminus	San Francisco & San Jose – via SF Peninsula	San Francisco, San Jose, Oakland – no Bay Crossing	Oakland & San Francisco – via Transbay Tube	San Jose, Oakland, & San Francisco via Transbay Tube	San Francisco & San Jose Termini	Oakland & San Jose Termini	San Francisco, Oakland, & San Jose Termini	San Jose Terminus	San Jose, San Francisco & Oakland – via Transbay Tube	San Jose, Oakland & San Francisco – via Transbay Tube	San Francisco & San Jose Termini	Oakland & San Jose Termini	SF, Oak, & SJ Termini (without Dumbarton Bridge)	San Jose Terminus
Figure # (see Chapter 7 of the 2008 Final Program EIR)	7.2-1	7.2-2	7.2-3	7.2-4	7.2-5	7.2-6	7.2-7	7.2-8	7.2-9	7.2-10	7.2-11	7.2-12	7.2-13	7.2-14	7.2-15	7.2-16	7.2-17	7.2-18	7.2-19	7.2-20	7.2-21
Length (miles)	203.34	182.16	241.16	160.18	191.56	170.86	157.93	213.30	244.70	179.64	199.11	267.53	256.87	309.60	213.15	276.31	265.66	339.16	318.45	360.90	286.04
Number of stations	9	8	11	6	8	7	5	9	11	8	9	7	7	10	4	8	8	10	9	12	7
Capital costs (billions \$)	\$12.7	\$10.0	\$15.1	\$7.7	\$11.0	\$8.2	\$6.0	\$12.6	\$14.5	\$12.9	\$14.8	\$12.5	\$11.7	\$16.1	\$8.1	\$17.1	\$16.4	\$18.5	\$16.1	\$20.5	\$13.6
Capital costs/mile of alignment (millions)	\$62.6	\$55.0	\$62.5	\$48.1	\$57.5	\$47.8	\$37.7	\$59.0	\$59.2	\$71.9	\$74.2	\$46.8	\$45.5	\$52.1	\$37.9	\$61.9	\$61.8	\$54.4	\$50.5	\$56.9	\$47.5
Ridership (millions annual)	87.91	88.01	81.13	94.65	93.88	94.39	83.49	90.75	85.22	95.94	89.62	93.33	91.37	85.52	79.69	95.2	92.07	96.15	92.88	87.81	89.79
Revenue (millions annual)	\$2,844	\$2,881	\$2,625	\$3,176	\$3,127	\$3,153	\$2,701	\$2,743	\$2,733	\$3,164	\$2,884	\$3,090	\$3,071	\$2,782	\$2,666	\$3,152	\$3,038	\$2,992	\$3,065	\$2,897	\$2,963
Annual operating costs (millions)	\$1,099	\$1,085	\$1,098	\$1,076	\$1,124	\$1,093	\$1,073	\$1,115	\$1,123	\$1,106	\$1,093	\$1,182	\$1,166	\$1,174	\$1,099	\$1,196	\$1,179	\$1,171	\$1,140	\$1,179	\$1,130
Bridge over bay=B Transbay tube=T	B	—	B	—	B	—	—	B	—	T	T	—	—	—	—	T	T	B	—	—	—
SF, Oakland, San Jose - # served	2	2	3	1	1	1	0	2	3	1	3	2	2	3	1	3	3	2	2	3	1
International airports	SFO/SJC	OAK/SJC	SFO/OAK/SJC	SJC	SFO	OAK	—	SFO/SJC	SFO/OAK/SJC	OAK	SFO/OAK/SJC	SFO/SJC	OAK/SJC	SFO/OAK/SJC	SJC	SFO/OAK/SJC	SFO/OAK/SJC	SFO/SJC	OAK/SJC	SFO/OAK/SJC	SJC
Express Train Travel Times (Hours:Min)																					
San Francisco - Los Angeles	2:36	—	2:36	—	2:36	—	—	2:36	3:17	2:31	2:31	2:38	—	2:38	—	2:38	2:38	2:38	—	2:38	—
Oakland - Los Angeles	—	2:23	2:23	—	—	2:23	—	—	2:23	2:23	2:23	—	2:30	2:30	—	2:46	2:30	—	2:30	2:30	—
San Jose - Los Angeles	2:19	2:19	2:19	2:19	—	—	—	2:37	2:19	—	2:19	2:09	2:09	2:09	2:09	2:09	2:09	2:09	2:09	2:09	2:09
San Francisco - Sacramento	1:06	—	1:06	—	1:06	—	—	1:06	1:39	0:57	0:57	1:47	—	1:47	—	1:47	1:44	1:15	—	1:48	—
Oakland - Sacramento	—	0:53	0:53	—	—	0:53	—	—	0:53	0:53	0:53	—	1:38	1:38	—	1:54	1:38	—	1:00	1:00	—
San Jose - Sacramento	0:49	0:49	0:49	0:49	—	—	—	1:03	0:49	—	0:49	1:18	1:18	1:18	1:18	1:18	1:18	0:56	0:56	0:56	0:56
Union City - Los Angeles	—	—	—	—	—	—	2:13	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 5. Summary Table

Characteristic/Impacts	Altamont Pass											Pacheco Pass						Pacheco Pass with Altamont Pass (local service)			
	San Francisco & San Jose Termini	Oakland & San Jose Termini	San Francisco, Oakland & San Jose Termini	San Jose Terminus	San Francisco Terminus	Oakland Terminus	Union City Terminus	San Francisco & San Jose — via SF Peninsula	San Francisco, San Jose, Oakland — no Bay Crossing	Oakland & San Francisco — via Transbay Tube	San Jose, Oakland, & San Francisco via Transbay Tube	San Francisco & San Jose Termini	Oakland & San Jose Termini	San Francisco, Oakland, & San Jose Termini	San Jose Terminus	San Jose, San Francisco & Oakland — via Transbay Tube	San Jose, Oakland & San Francisco — via Transbay Tube	San Francisco & San Jose Termini	Oakland & San Jose Termini	SF, Oak, & SJ Termini (without Dumbarton Bridge)	San Jose Terminus
Union City - Sacramento	—	—	—	—	—	—	0.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Farmland (acres)	764.2	761.9	764.2	761.9	757.8	755.5	755.5	757.8	761.9	755.5	761.9	1,372.3	1,378.7	1,378.7	1,372.3	1,372.3	1,378.7	1,380.0	1,384.1	1,384.1	1,384.1
Prime farmland (acres)	429.1	426.8	429.1	426.8	422.7	420.3	420.3	422.7	426.8	420.3	426.8	663.3	669.7	669.7	663.3	663.3	669.7	760.4	764.5	764.5	764.5
Floodplains (acres) direct impacts (direct/indirect)	308.3/ 969	218.6/ 720	315.3/ 984	211.6/ 706	270.7/ 817	181.1/ 568	177.6/ 561	317.7/ 891	314.5/ 896	181.1/ 568	218.6/ 720	520.8/ 1,633	477.5/ 1,639	573.4/ 1,814	424.9/ 1,458	520.8/ 1,633	477.5/ 1,685	547.1/ 3,411	456.4/ 1,633	552.2/ 1,685	432.2/ 1,479
Floodplains/linear mile of alignment	1.52	1.20	1.31	1.32	1.41	1.06	1.12	1.49	1.29	1.01	1.10	1.95	1.86	1.85	1.99	1.88	1.80	1.61	1.43	1.53	1.51
Streams (linear feet) (direct/indirect)	16,824/ 71,320	17,660/ 76,905	19,814/ 82,951	14,670/ 65,274	15,995/ 67,867	16,831/ 72,451	14,432/ 65,198	17,481/ 70,714	20,273/ 82,171	16,831/ 73,451	17,660/ 76,905	20,276/ 90,572	21,788/ 99,406	24,401/ 104,672	17,663/ 85,306	20,276/ 90,572	30,278/ 137,768	27,130/ 125,490	27,666/ 132,501	30,278/ 137,768	24,197/ 120,049
Waterbodies (lakes + SF bay) (acres) (direct/indirect)	39.6/ 154.9	2.3/ 7.6	39.6/ 154.9	2.3/ 7.6	39.6/ 154.9	2.3/ 7.6	2.3/ 7.6	39.6/ 154.9	2.3/ 11	38.8/ 243.1	38.8/ 243.1	3.8/ 19.7	4.5/ 17.6	4.5/ 21	3.8/ 16.3	40.3/ 255.2	41/ 253.1	41.9/ 164.9	5.3/ 18.92	5.3/ 22.3	4.6/ 17.6
Wetlands (acres) (direct/indirect)	45.9/ 2,526	12.3/ 805	46.3/ 2,594	12.0/ 737	44.4/ 2,259	10.8/ 539	10.7/ 499	44.4/ 2,264	12.4/ 957	33.6/ 1,892	35.1/ 2,158	15.6/ 1,601	17.4/ 1,825	17.5/ 1,977	15.5/ 1,449	38.4/ 2,955	40.2/ 3,179	56.1/ 3,499	25.3/ 2,180	25.4/ 2,332	23.7/ 1,972
Nonwetland waters (linear feet)	16,773	14,032	16,932	13,577	15,947	13,502	13,113	15,947	14,662	13,502	14,032	14,395	14,533	15,123	14,395	14,395	14,553	19,891	17,977	18,556	17,521
Species (special status plants)	56	40	57	39	56	39	38	56	56	40	42	58	49	63	46	59	50	70	67	71	54
Species (special status wildlife)	50	44	50	43	49	44	36	49	50	43	43	53	49	53	38	53	49	57	51	58	50
Cultural resources (number)	151	128	175	93	146	112	88	182	205	114	119	168	107	196	79	109	112	199	134	223	110
Fault Crossings (Active & Potentially Active)	11	7	13	6	9	5	4	10	9	5	7	5	6	8	3	5	6	13	10	12	9
Crosses Active Fault in Tunnel (Calaveras)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	Yes
Immediately Adjacent & Parallel to Active Fault (Hayward)	No	Yes	Yes	No	No	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	No	Yes	Yes	No
4(f)/6(f) Resources (0-150 feet)	32	29	39	22	24	21	18	30	39	22	30	18	21	31	8	19	22	35	36	46	27

Table 5. Summary Table

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Characteristic/Impacts	Altamont Pass											Pacheco Pass						Pacheco Pass with Altamont Pass (local service)			
	San Francisco & San Jose Termini	Oakland & San Jose Termini	San Francisco, Oakland & San Jose Termini	San Jose Terminus	San Francisco Terminus	Oakland Terminus	Union City Terminus	San Francisco & San Jose — via SF Peninsula	San Francisco, San Jose, Oakland — no Bay Crossing	Oakland & San Francisco — Via Transbay Tube	San Jose, Oakland, & San Francisco Via Transbay Tube	San Francisco & San Jose Termini	Oakland & San Jose Termini	San Francisco, Oakland, & San Jose Termini	San Jose Terminus	San Jose, San Francisco & Oakland—Via Transbay Tube	San Jose, Oakland & San Francisco—Via Transbay Tube	San Francisco & San Jose Termini	Oakland & San Jose Termini	SF, Oak, & SJ Termini (without Dumbarton Bridge)	San Jose Terminus
Station Location Options																					
Transbay Transit Center	■		■		■			■	■	■	■	■		■		■	■	■		■	
Millbrae/SFO	■		■		■			■	■			■		■		■		■		■	
Redwood City (Caltrain)	■		■		■				■							■				■	
Palo Alto (Caltrain)								■				■		■				■		■	
West Oakland/7th Street		■	■			■			■	■	■		■	■		■	■		■	■	
Coliseum/Airport		■	■			■			■	■	■		■	■			■		■	■	
Union City (BART)		■	■			■	■		■	■	■		■	■		■			■	■	
Union City (Shinn)					■			■													
Fremont (Warm Springs)	■			■														■			■
San Jose (Diridon)	■	■	■	■				■	■		■	■	■	■	■	■	■	■	■	■	■
Gilroy (Caltrain)												■	■	■	■	■	■	■	■	■	■
Pleasanton (I-680/Bernal Rd)	■	■	■	■	■	■	■	■	■	■	■							■	■	■	■
Tracy (Downtown)	■	■	■	■	■	■	■	■	■	■	■							■	■	■	■
Modesto (Downtown)	■	■	■	■	■	■	■	■	■	■	■							■	■	■	■
Briggsmore (Amtrak)												■	■	■	■	■	■				
Merced (Downtown)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Notes																					
■ indicates stations served																					



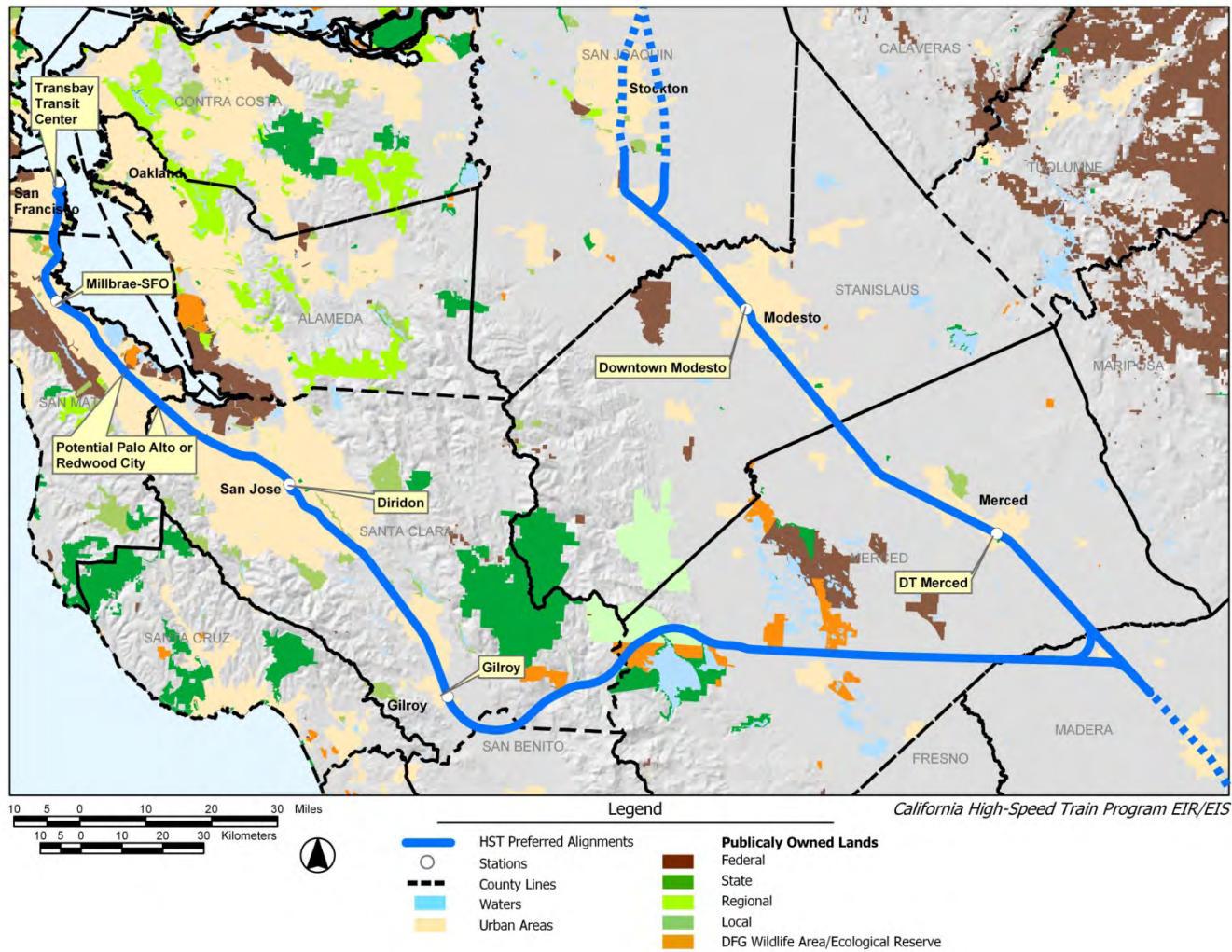


Figure 6. Preferred Alternative Identified in the Revised Final Program EIR





The Authority also identified the following mitigation strategies that can be refined and applied at the project-specific level and will avoid or reduce impacts to agricultural lands:

- Avoid farmland whenever feasible during the conceptual design stage of the project.
- Reduce the potential for impacts by sharing existing rail rights-of-way where feasible or by aligning HST features immediately adjacent to existing rail rights-of-way.
- Reduce the potential for impacts by reducing the HST right-of-way width to 50 feet in constrained areas.
- Coordinate with private agricultural land trusts, local programs, mitigation banks, and Resource Conservation Districts to identify additional measures to limit important farmland conversion or provide further protection to existing important farmland.
- The Authority, or other entities designated and supported by the Authority will acquire, from willing sellers, agricultural conservation easements encompassing at least 3,500 acres of important farmland (as defined by the FMMP). The eventual locations and total acreage for these easements would be determined in consultation with the California Department of Conservation, and others, and in conjunction with project-level decisions of the HST system.

The Revised Final Program EIR clarifies the location of the HST track alignment in the area between San Jose and Gilroy. Chapter 2 explains that the UPRR right of way in this area is narrow, and that the HST track would be located adjacent to the freight right of way. Chapter 2 then explains that for a distance of about 3.3 miles, it would be necessary to narrow Monterey Highway from 6 to 4 lanes to accommodate the HST alignment, resulting in a significant traffic impact that had not been identified when the Pacheco Pass Network Alternative serving San Francisco via San Jose was identified as preferred in 2008. Mitigation strategies are identified in the Final Program EIR to address the increased traffic congestion that would result from narrowing Monterey Highway, however, as stated in Chapter 2 of the Revised Final Program EIR, it is not possible at the program level to conclude that these strategies will avoid or substantially lessen the impact. More detailed traffic studies at a project level would more precisely characterize the impact and mitigation, but at the program level the Monterey Highway traffic effect results in a significant and unavoidable impact.

The Revised Final Program EIR also identifies significant impacts to the Keesling's Shade Trees, a California Point of Historical Interest, which was not identified when the Pacheco Pass Network Alternative serving San Francisco via San Jose was identified as preferred in 2008. For the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act, an evaluation would be made about whether or not the trees are eligible for the National Register of Historic Places, and gain State Historic Preservation Office (SHPO) concurrence with that finding. If a grouping or groupings of the trees are found to be eligible for the National Register, an analysis would be conducted to determine whether the project would have an adverse effect (36 CFR § 800.5). If adverse, Section 106 would require SHPO consultation to mitigate the effects. Mitigation might be avoidance through project design, or possibly filling in gaps where specimens have died or are dying that are avoided by the project, in exchange for the removal of specimens in the way of the project. Sufficient information is not available at this programmatic level to conclude with certainty that the above mitigation strategies would reduce the impact for the removal of these trees to a less-than-significant level. This Revised Final Program EIR concludes that the impacts on Keesling's Shade Trees may be significant, even with the application of mitigation strategies.

The Authority and FRA also reaffirm their 2005 Statewide Program EIR/EIS decision that there will be no HST stations between Gilroy and Merced. In addition, the Preferred Alternative does not include a maintenance facility between Gilroy and Merced.

The Pacheco Pass via Henry Miller alternative would provide slightly higher ridership potential, provide the fastest travel times and the most direct link between the Bay Area and southern California, and would generally parallel an existing roadway corridor through the environmentally sensitive areas that cross from the Bay Area to the Central Valley, minimizing potential severance and other environmental impacts as compared to the Pacheco via GEA North alternative.

A. PREFERRED STATION LOCATIONS

- Downtown San Jose Terminus: Diridon Station

Diridon Station is a multi-modal hub that maximizes connectivity to downtown San Jose, San Jose International Airport, and the southern Bay Area; would have high ridership potential; and is favored by the City of San Jose and the VTA.

- Southern Santa Clara County: Gilroy Station (Caltrain)

Gilroy (Caltrain) station is the preferred HST station to serve southern Santa Clara County and the Monterey Bay Area. This station would provide the highest accessibility and connectivity for these regions and would have the highest ridership potential.

### 1.6.3 Central Valley Alignment

*UPRR N/S Alternative is the preferred alternative.* However, at the project-level, the Authority would continue to evaluate the BNSF Alternative because of the uncertainty of negotiating with the UPRR for use of some of its right-of-way and would continue investigation of alignments/linkages to a potential maintenance facility at Castle AFB.

The UPRR alternative would have high potential ridership, would serve potential downtown station sites at Modesto and Merced providing the highest connectivity and accessibility for this part of the Central Valley, and would best meet the Authority's adopted transit-oriented development criteria for station locations.

New and revised information in the Revised Final Program EIR does not identify new or different environmental impacts for this alignment.

A. PREFERRED STATION LOCATIONS

- Modesto: Downtown Modesto

The downtown Modesto station is the preferred HST station for Modesto because it maximizes connectivity and accessibility to downtown Modesto and would best meet the Authority's adopted transit-oriented development criteria for station locations by serving the downtown of this Central Valley city.

- Merced: Downtown Merced

The downtown Merced station is the preferred HST station for the Merced area because it maximizes connectivity and accessibility to downtown Merced and would best meet the Authority's adopted transit-oriented development criteria for station locations by serving the downtown of this Central Valley city.

#### Maintenance Facilities

There is strong agency and public support in the Merced region for a maintenance facility at Castle AFB, whereas the West Oakland site would not serve the preferred Pacheco Pass alternative. The Castle AFB location is being identified for further study along with other potential locations. The

number needed and potential locations for maintenance facilities will be studied at the project level when more detailed information is available on system design and alignment placement.

#### **1.6.4 Critical Factors for Identification of the Preferred Alternative**

The Pacheco Pass alternative serving San Francisco and San Jose termini best meets the purpose and need for the proposed HST system. Key reasons include:

##### **A. THE PACHECO PASS MINIMIZES IMPACTS ON WETLANDS, WATERBODIES, AND THE ENVIRONMENT**

The statewide HST system should provide direct service to Northern California's major hub airport at SFO and major transit, business, and tourism center at downtown San Francisco. The Pacheco Pass alternative serving San Francisco and San Jose termini has the least potential environmental impacts overall while providing direct HST service to downtown San Francisco, SFO, and the San Francisco Peninsula (Caltrain Corridor) and minimizes construction issues which can lead to delay and cost escalation.

The Pacheco Pass enables San Francisco, SFO, and the San Francisco Peninsula to be directly served without a crossing of the San Francisco Bay. Altamont Pass alternatives requiring a San Francisco Bay crossing would have the greatest potential impacts on the San Francisco Bay and have high capital costs and constructability issues. The Dumbarton Crossing would also have the greatest potential impacts on wetlands and the Don Edwards San Francisco Bay National Wildlife Refuge. To implement these alternatives, extensive coordination would be required with the USACE under Section 10 of the Rivers and Harbors Act and the California Coastal Commission, and the Bay crossing would be subject to the USACE, CDFG, and BCDC permit process. A number of agencies, organizations, and individuals have raised concerns regarding to the construction of a HST crossing of the San Francisco Bay. These include the MTC, BCDC, USEPA, USFWS, Congress members Zoe Lofgren, Michael Honda, Anna Eshoo, and Tom Lantos, State Senators Elaine Alquist and Abel Maldonado, and Assembly member Jim Beale as well as Santa Clara County, San Mateo County Transit District (SamTrans), San Mateo County Transportation Authority (TA), Peninsula Corridor (Caltrain) Joint Powers Board (JPB), San Francisco Bay Trail Project, San Jose Chamber of Commerce, the City of San Jose, the City of Oakland, and Don Edwards (Member of Congress, 1963–1995).

While a considerable number of comments have raised concerns about potential environmental impacts for Pacheco Pass alternatives (in particular relating to potential impacts on the GEA), HST via the Pacheco Pass is feasible and preferred because it would result overall in fewer impacts when compared to the Altamont Pass alternatives with a Bay crossing. Additionally, the Pacheco Pass alternative would include various measures to avoid, minimize, and/or mitigate environmental impacts to the extent feasible and would offer opportunities for environmental improvements along the HST right of way that could be accomplished during project design, construction, and operation, including through use of tunnels and aerial structures where appropriate. This contrasts with the more uncertain regulatory approvals that would be needed for crossings of San Francisco Bay and the Don Edwards San Francisco Bay National Wildlife Refuge. Identification of a preferred alternative in the 2008 Final Program EIR/EIS is required for NEPA compliance. Since the identified preferred alternative would have the least overall environmental impacts, it is also identified as the environmentally superior alternative for CEQA compliance and the environmentally preferable alternative under NEPA.

## B. THE PACHECO PASS BEST SERVES THE CONNECTION BETWEEN THE NORTHERN AND SOUTHERN CALIFORNIA

### Operational Benefits Result in Greater Frequency and Capacity

San Francisco and San Jose would be served with one HST alignment along the Caltrain corridor providing the most frequent service to these destinations, whereas the most promising Altamont Pass alternatives would split HST services (express, suburban express, skip-stop, local, regional) between two branch lines to serve San Jose and either San Francisco or Oakland—reducing the total capacity of the system to these markets. The proposed HST system already has two locations where there are branch splits (north of Fresno—to Sacramento and the Bay Area, and south of Los Angeles Union Station—to Orange County and the Inland Empire). Avoiding additional branch splits in the HST alignment would benefit train operations and service.

### Provides a Superior Connection between the South Bay and Southern California

The Pacheco Pass enables the shortest connection to be constructed between the South Bay and Southern California with the quickest travel times between these markets. A southern Santa Clara County HST station increases connectivity and accessibility for the South Bay and the three county Monterey Bay area.

### Fewer Stations between the Major Metropolitan Areas

The core purpose of the HST system is to serve passenger trips between the major metropolitan areas of California. There is a critical tradeoff between the accessibility of the system to potential passengers that is provided by multiple stations and stops, and the resulting HST travel times. Additional or more closely spaced stations (even with limited service) would lengthen travel times, reduce frequency of service, and the ability to operate both express and local services. The Pacheco Pass has the advantage of fewer stops through the high-speed trunk of the system between San Francisco or San Jose and Southern California, the most populated regions of the state.

Between Merced and Gilroy, the high-speed trains will be maintaining speeds well over 200 mph. The fact that there is no significant population concentrations between Merced and Gilroy along the Pacheco Pass is a positive attribute since there are fewer communities and hence fewer community impacts. Additionally there will be no HST station between Gilroy and Merced. As a result, the Pacheco Pass minimizes the potential for sprawl inducement as compared with the Altamont Pass.

### Minimizes Logistical Constraints

The Pacheco Pass avoids construction issues and logistical constraints through the Tri-Valley and Alameda County. The Tri-Valley PAC has raised serious concerns with all the Altamont Pass alternatives regarding land use compatibility and right-of-way constraints and the need for aerial structures through the Tri-Valley. All Altamont Pass alternatives have tunneling/seismic issues (Calaveras Fault) in the Pleasanton Ridge/Niles Canyon area as well as seismic issues in the East Bay (Hayward Fault). Both the City of Fremont and the City of Pleasanton are opposed to HST alternatives through these cities because of potential environmental issues, right-of-way constraints, and other logistical issues. In addition, UPRR's position denying use of its rights-of-way for HST tracks presents a greater implementation challenge for the Altamont Pass network alternatives than for the Pacheco Pass Network Alternative serving San Francisco via San Jose.

## C. THE PACHECO PASS BEST UTILIZES THE CALTRAIN CORRIDOR.

The Pacheco Pass alternative would enable the early, incremental implementation of the entire Caltrain Corridor section between San Francisco, San Jose, and Gilroy. The HST system is complementary to Caltrain and would utilize the Caltrain right-of-way and share tracks with express Caltrain commuter rail services. Caltrain intends to use lightweight, electrified trains that would be

compatible with HST equipment. Because it utilizes the Caltrain corridor, environmental impacts would be minimized. The Authority's phasing plan identifies the Caltrain Corridor (between San Francisco and San Jose) as allowing the Authority to maximize the use of local and regional funds dedicated to train service improvements, and thereby helping to reduce the need for state funds.

**D. THE PACHECO PASS IS STILL SUPPORTED BY THE BAY AREA REGION.**

Many of the Bay Area local and regional governments, transportation agencies, and business organizations strongly support the Pacheco Pass alternative to San Francisco via San Jose and the Caltrain Corridor. As described in Section 7.3-2, there is considerable city and community concern for implementation of HST along the San Francisco Peninsula overall. However, there is strong support for the recommended Pacheco Pass alternative from the cities of San Francisco and San Jose, and the Metropolitan Transportation Commission, the regional transportation planning agency for the San Francisco Bay Area. This support is critical towards implementing this major infrastructure project through the heavily urbanized Bay Area linking San Francisco, San Jose and Gilroy.

**E. THE PACHECO PASS HAS THE FEWEST IMPACTS TO COMMUNITIES BECAUSE IT MAKES THE BEST USE OF AVAILABLE RAIL AND TRANSPORTATION RIGHTS OF WAY.**

The Pacheco Pass Network Alternative serving San Francisco via San Jose is least disruptive to communities because it is designed to use existing, publicly owned rail and highway right-of-way as a method of minimizing environmental and community impacts. The publicly owned rail right-of-way between San Francisco and San Jose provides a very unique opportunity to reach both San Francisco and San Francisco International Airport without having to construct an entirely new or largely new rail right-of-way for the HST. The Peninsula Corridor Joint Powers Board is a willing partner with the Authority and strongly supports incorporation of HST service along with Caltrain and UPRR freight in this corridor. The presence of the Monterey Highway right-of-way between San Jose and Gilroy also provides a very unique opportunity to minimize impacts to communities because it allows for HST tracks to be built largely within existing publicly owned right-of-way, thereby minimizing the need for acquiring property and constructing an entirely new or largely new rail right-of-way for the HST. The City of San Jose is a willing partner with the Authority and strongly supports the narrowing of the underutilized Monterey Highway in order to accommodate HST service in this corridor.

**1.6.5 Federal Least Environmentally Damaging Practicable Alternative, NEPA Environmentally Preferable Alternative, and CEQA Environmentally Superior Alternative**

The U.S. Environmental Protection Agency (USEPA) and the USACE have participated in the development of both the 2007 Draft and 2008 Final Program EIR and, in accordance with the June 12, 2006, Interagency Memorandum of Understanding among federal agencies and the Authority for the programmatic, or Tier 1, environmental review, were consulted concerning the selection of the corridor and alignments most likely to yield the LEDPA. The USEPA and USACE concurred that the Preferred Pacheco Pass Network Alternative serving San Francisco via San Jose described in Section 1.6 of this report is most likely to yield the LEDPA.

In addition, the Authority and FRA have identified the Preferred Pacheco Pass Network HST Alternative described in Section 1.6 of this report as the environmentally preferable under NEPA and environmentally superior under CEQA.

**1.7 Altamont Pass/Northern San Joaquin Valley Improvements – Regional Rail**

The Altamont Pass provides superior travel times between Sacramento/Northern San Joaquin Valley and the Bay Area and is strongly supported by the Central Valley. Many of the comments received in support



of the Altamont Pass are related to its great potential for serving long-distance commuters between the Central Valley and the Bay Area. As indicated by the comments received by the Tri-Valley PAC, many of the negative impacts associated with construction of HST through the Tri-Valley might be considerably reduced by the elimination of the additional tracks needed for HST express services.

The Authority is working in partnership with “local and regional agencies and transit providers” to develop a joint-use (Regional Rail and HST) infrastructure project in the Altamont Pass corridor—as advocated in MTC’s recently approved “Regional Rail Plan for the San Francisco Bay Area.” Regionally provided commuter overlay services would require regional investment for additional infrastructure needs and potentially need operational subsidies. The Authority cannot unilaterally plan for regionally operated commuter services.

“Regional Rail” in the Altamont Pass corridor is being pursued by the partnership as an independent project to satisfy a different purpose and need<sup>7</sup> from the proposed HST system, but that could also accommodate HST service. The Authority is the lead state agency and the Federal Railroad is the lead federal agency for the project EIR/EIS process, which was initiated on October 22, 2009. The Authority is working in partnership with other agencies to secure local, state, federal, and private funding to develop this joint-use infrastructure project in the Altamont corridor. This corridor was added as part of the Proposition 1A HST funding package.

The Authority is pursuing potential joint-use Altamont Corridor Regional Rail/HST services and identifying alternatives for further evaluation, including direct service to San Jose or potentially terminating HST service at Livermore (connecting to an extended and enhanced BART system). The Authority’s objective is that the infrastructure would be electrified, fully grade-separated, and compatible with and shared by HST services. Providing connectivity and accessibility to Oakland and Oakland International Airport would be a crucial objective for this project.

At this time, no proposed alignments have been identified for the Altamont Corridor Rail Project; however, the corridor limits are between Stockton and San Jose, which are the terminal stations for the current ACE service. Specific alignments and station locations will be identified along this corridor and evaluated through the preparation of the project environmental document. The Altamont Corridor Rail Project is intended to include a potential branch east of Tracy to allow operation of trains between the Bay Area and points north including Stockton and Sacramento as well as points south including Modesto and beyond within the Statewide HST System. Project alternatives are intended to provide intermodal connections to the Bay Area Rapid Transit (BART) to serve the Oakland Airport, the cities of Oakland and San Francisco as well as other East Bay and South Bay locations via BART. Intermodal connections to BART would be provided in the Livermore vicinity, should the Dublin/Pleasanton BART line be extended, as well as in the Fremont/Union City vicinity, either meeting the existing Fremont line or the Warm Springs/San Jose extension. The Altamont Corridor Rail Project may also accommodate a future connection to the Dumbarton rail service in the Fremont/Union City vicinity as well as an intermodal connection to the Valley Transportation Authority (VTA) light rail network in Santa Clara County. Additionally, the project will accommodate feeder and connecting bus services providing access to proximate market areas and interfacing with regional bus links where appropriate.

To lay the groundwork for the Altamont Corridor Rail Project, the Authority will work with ACE, SJRRC, San Joaquin County Council of Governments, the Tri-Valley Pac, Alameda County, Santa Clara County, and others to get the Altamont Regional Rail/HST project identified in the update to the 2035 Regional Transportation Plan (RTP) and funds programmed in the 2035 RTP and RTIP. Since July 2008, the Authority has been leading the “Altamont Working Group” that includes MTC and agencies and transit providers along the Altamont corridor project study that addresses the Altamont Pass, the East Bay

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<sup>7</sup> As defined in CEQA and NEPA implementing regulations, procedures, and guidelines.

connections, and stations in partnership, and provides the information necessary for the Authority to undertake an environmental study for this project.

## **1.8 Next Steps**

Provided the Authority certifies the Revised Final Program EIR and makes findings for compliance with CEQA along with the Record of Decision issued by FRA for compliance with NEPA, the Authority and FRA would focus future project analysis in the study region on alignment and station location options selected through this program environmental process. Site-specific location and design alternatives for the preferred alignment and station location options, including avoidance and minimization alternatives, would be fully investigated and considered during Tier-2, project-level environmental review.

Preliminary engineering and project-level environmental review would assess site-specific issues and potential environmental impacts not already addressed in the Revised Final Program EIR. Project-level environmental review would focus on a portion or portions of the proposed HST system and would provide further analysis of potential impacts and mitigation at an appropriate site-specific level of detail to obtain needed permits and to implement HST projects. Also, the Authority would work with local governments, transportation agencies, and private parties to identify right-of-way preservation needs and protective advance acquisition opportunities consistent with state and federal authority requirements.

## **1.9 Bay Area to Central Valley Alignment Alternatives and Alignment Alternatives and Station Locations Considered and Rejected**

The proposed CEQA Findings and Statement of Overriding Considerations (attachment to this report) provide a summary of the Bay Area to Central Valley Alignment Alternatives and Alignment Alternatives and Station Locations that were considered and are now rejected by virtue of the Authority Board's actions.

## **1.10 Contact**

Dan Leavitt  
Deputy Director  
California High-Speed Rail Authority  
925 L Street, Sacramento CA 95814  
(916) 324-1541  
[dleavitt@hsr.ca.gov](mailto:dleavitt@hsr.ca.gov)





# **ATTACHMENT A**

## **REVISED FINAL PROGRAM EIR CHAPTER 12—STANDARD RESPONSES**



## 12 STANDARD RESPONSES TO FREQUENTLY RAISED COMMENTS

As part of the public review process from March 11, 2010, to April 26, 2010, for the March 2010 Revised Draft Program Environmental Impact Report Material (2010 Revised Draft Program EIR), the High-Speed Rail Authority (Authority) received over 540 comment letters containing more than 3,750 individual comments. Some comments addressed the 2010 Revised Draft Program EIR; however, many addressed the May 2008 Final Bay Area to Central Valley High-Speed Train (HST) Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) (2008 Program EIR/EIS) and other Authority documents such as the Authority's Business Plan. Many comments offered opinions about the proposed project generally. The following standard responses address the cumulative body of hundreds of comments that raise the same or very similar points regarding the 2010 Revised Draft Program EIR, the portion of the HST system proposed to connect the San Francisco Bay Area to the Central Valley, and the Authority's choice of corridor alignment for the HST system to connect the Bay Area to the Central Valley. This section provides a single location where the most frequently raised comments are addressed. Responses referring to other documents or other reviews, such as project-level environmental studies, are intended to provide information and are not to be construed as prejudging the outcome of this process.

The following standard responses are intended to provide general responses to the most frequently raised comments. Topics include:

- Standard Response 1 Purpose and Scope of the 2010 Revised Draft Program EIR
- Standard Response 2 Tiered Planning Process for HST System and Relationship of Bay Area to Central Valley Program EIR Process to Project-Level EIRs/EISs
- Standard Response 3 Level of Detail for Impacts Analysis and Mitigation
- Standard Response 4 Ridership Modeling
- Standard Response 5 Noise Impacts
- Standard Response 6 Effect of the Project on Property Values, Communities, and Quality of Life
- Standard Response 7 Project Eminent Domain Issues
- Standard Response 8 The Authority's Business Plan
- Standard Response 9 Union Pacific Railroad Issues
- Standard Response 10 Alternatives

## STANDARD RESPONSE 1

### Purpose and Scope of the Revised Draft Program EIR

*Numerous comments assert that the Authority must respond to comments not only on the 2010 Revised Draft Program EIR Material, but also on new comments on the analysis in the 2008 Final Program EIR/EIS. Other comments appear to disregard the context of the current recirculated EIR material and treat the public comment period as an opportunity to raise issues beyond the scope of the recirculated material. Some comments threaten further lawsuits if the Authority does not respond to comments on the 2008 Final Program EIR/EIS. Still other comments suggest that the Authority should have recirculated the entire Program EIR, or that the Authority should have prepared an entirely new Draft Program EIR and started the environmental analysis process anew.*

As explained in the 2010 Revised Program EIR, Chapter 1, the Authority circulated the revised Draft Program EIR Material to comply with the final judgment in the *Town of Atherton* litigation on the 2008 Program EIR/EIS. The judgment incorporates the Sacramento Superior Court's ruling, which was included as Appendix A to the Revised Draft Program EIR. In the ruling, the Court concluded that the Authority's 2008 Final Program EIR failed to comply with the California Environmental Quality Act (CEQA) in the following respects:

- **ADEQUACY OF PROJECT DESCRIPTION:** "The Court concludes that the description of the alignment of HSR tracks between San Jose and Gilroy was inadequate even for a programmatic EIR. The lack of specificity in turn results in an inadequate discussion of the impacts of the Pacheco alignment on surrounding businesses and residences which may be displaced, construction impacts on the Monterey Highway, and impacts on Union Pacific Railroad's use of its right-of-way and spurs and consequently its freight operations." (Ruling, p. 6.)
- **RECIRCULATION AFTER UNION PACIFIC RAILROAD ANNOUNCED ITS UNWILLINGNESS TO ALLOW USE OF ITS RIGHT-OF-WAY:** "[T]his Court concludes that various

drawings, maps and photographs within the administrative record strongly indicate that [the Pacheco alignment is dependent upon the use of Union Pacific's right-of-way.] The record further indicates that if the Union Pacific right-of-way is not available, there may not be sufficient space for the right-of-way needed for the HST without either impacting the Monterey Highway or without the acquisition of additional amounts of residential and commercial property. These are significant impacts which were sufficient to trigger recirculation of the FPEIR." (Ruling, pp. 19- 20.)

- **LAND USE IMPACTS ALONG SAN FRANCISCO**

**PENINSULA:** "As discussed elsewhere in this Court's ruling, Union Pacific has stated it is unwilling to allow its right-of-way to be used for the project. The need for acquiring additional property is a related issue that will be required to be analyzed in connection with further analysis of the impact of Union Pacific's denial of use of its right-of-way." (Ruling, pp. 15-16.)

The Court also held the Authority's CEQA finding on vibration impacts was not supported by substantial evidence. (Ruling, p. 14.) The Court rejected all other challenges to the content of the 2008 Final Program EIR raised in the litigation. (Ruling, p. 21.)

The Authority revised and recirculated portions of its 2008 Final Program EIR to comply with the *Town of Atherton* court judgment described above. The requirement of the judgment to revise and recirculate portions of the program EIR does not require the Authority to start the program EIR process anew. (*Protect the Historic Amador Waterways v. Amador Water Agency* [2004] 116 Cal.App.4th 1099, 1112.) Recirculation of the EIR "may be limited by the scope of the revisions required." (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* [2007] 40 Cal.4th 412, 449.) Where the scope of revisions is limited to certain chapters or portions of the EIR, a lead agency need only recirculate the chapters or portions that have been modified. (*Id.*; citing CEQA

Guidelines, § 15088.5, subd. (c)). The 2010 Revised Draft Program EIR Material therefore contains the revised information and analysis to address the issues that the Court identified in its ruling. The final court judgment did not require the Authority to revise and recirculate the entire 2008 Final Program EIR or to start the CEQA process from scratch.

Regarding the Authority's duty to respond to comments under CEQA, the Authority has followed the direction in CEQA Guidelines section 15088.5(f)(2). This provision indicates that, where a lead agency is revising and recirculating only a portion of an EIR, "the lead agency may request that reviewers limit their comments to the revised chapters or portions of the recirculated EIR." The provision further indicates that the lead agency need respond only to those comments received during the recirculation period that relate to the portions of the EIR that were revised and recirculated. Following this CEQA Guideline section, the Authority's responses to comments address all the comments received that pertain to the 2010 Revised Draft Program EIR Material. In addition, the Authority has gone beyond the minimum requirements by providing responses to comments on all significant environmental issues raised in the comments.



**STANDARD RESPONSE 2****Tiered Planning Process for HST System and Relationship of Bay Area to Central Valley  
Program EIR Process to Project-Level EIR/EISs**

*Many comments have requested information about impacts and mitigation that cannot be known at the program level because the project design and engineering have not progressed to the point where that analysis can be completed. Numerous comments identified information that has been or is being generated as part of project-level EIR/EIS work for the San Francisco to San Jose and San Jose to Merced sections of the HST system and commented that such information should be considered as part of the current program EIR process. Other comments appear to be comments directed at the Authority's project-level preliminary alternatives analysis work. Other comments suggest that the Authority now has an inherent bias in favor of the Pacheco Pass network alternative due to ongoing project-level EIR/EIS work being undertaken while the Program EIR is being revised and recirculated.*

Since 2000, the Authority, in cooperation with the Federal Railroad Administration (FRA), has been using the tiering provisions in CEQA and in the National Environmental Policy Act (NEPA) to make discrete, incremental decisions about the HST system in California. Tiering refers to the use of broader and more general EIRs to evaluate general projects or broad policy decisions, followed by more specific EIRs to evaluate more specific projects or decisions at identified locations. The Authority and the FRA completed the *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System* (Statewide Program EIR/EIS) in 2005 and used that first-tier environmental document to support its selection of the HST system to serve California's future statewide transportation needs, in addition to the state's freeways, highways, airports, and conventional rail systems. The 2005 Program EIR/EIS also supported the Authority's and FRA's selection of preferred general corridor alignments and station locations for further study in second-tier, project-level EIR/EIS documents, with the exception of alignments and station locations for connecting the Bay Area to the

Central Valley. For this portion of the future HST system, the Authority and FRA defined the broad corridor between and including the Altamont Pass and the Pacheco Pass for further first-tier, program-level study to be conducted prior to selecting alignments and station locations for further project-level study.

The Authority and FRA completed the Draft Bay Area to Central Valley Program EIR/EIS in July 2007, circulated the document for public comment, and the 2008 Final Program EIR/EIS in May. The 2008 Program EIR/EIS was specifically designed to assist the Authority in making the fundamental choice of a preferred alignment within the broad corridor between and including the Altamont Pass and Pacheco Pass for the HST segment connecting the San Francisco Bay Area to the Central Valley. The Authority certified the 2008 Final Program EIR for compliance with CEQA in July 2008 and selected the Pacheco Pass network alternative with major stations in San Francisco and San Jose as the preferred alternative to advance into project-level, second-tier environmental review.

The Authority's decisions were subsequently challenged in litigation. The result of the litigation was that the Authority rescinded its certification of the May 2008 Final Program EIR/EIS as complying with CEQA and rescinded its selection of the Pacheco Pass network alternative serving San Francisco via San Jose as the preferred alternative for further study. To comply with the final court judgment, the Authority has circulated the 2010 Revised Draft Program EIR for 45 days, has prepared the current responses to comments as part of a Revised Final Program EIR, and will consider these materials before making a determination whether to take the following actions:

1. Certify the Revised Final Program EIR for compliance with CEQA
2. Select a preferred network alternative and station locations for further study

3. Adopt CEQA findings of facts
4. Adopt a statement of overriding considerations, and
5. Adopt a mitigation monitoring and reporting program

The Authority intends to complete the program-level decision making process in the near future at a regularly noticed meeting of the Authority Board. With selection of a preferred network alternative and station locations for further study, the Authority and FRA would move into more detailed, project-level planning and design for the HST system.

As part of the *Town of Atherton* litigation, the Superior Court considered a request by the plaintiffs in the case for an order requiring the Authority to stop its more detailed, project-level planning and design for the HST system in the Bay Area to Central Valley study area until it had corrected its program EIR and made a new program-level decision. The Court declined to issue such an order enjoining the Authority from proceeding with its project-level EIR work. The Authority has therefore proceeded with certain initial steps in project-level planning and environmental review for the San Francisco to San Jose and the San Jose to Merced sections of the HST system. The project-level work has included project scoping as contemplated in NEPA and CEQA, early consultation with state and federal agencies, preliminary screening of potential project-level alternatives, 15% design, and many public information meetings.

For those comments received on the current program-level EIR that appear to address issues identified as part of project-level planning, such as preliminary alternative screening, or comments on issues in detail that goes beyond the program-level analysis, the Authority has referred the comments to the Authority staff and consultants who are preparing the applicable project-level EIR/EIS.

The Authority acknowledges that it must, and intends to, make a new program-level decision on a preferred network alternative and preferred station locations for the Bay Area to Central Valley study area. The Authority further acknowledges that it must, and fully intends to, give fair consideration to all of the information in the 2008 Final Program EIR, the 2010 Draft and Final Revised Program

EIR, and the entire record before it in making a new decision. The new decision has the potential to result in changes to the project-level EIR/EIS work currently underway. The extent of any such changes, and any appropriate further direction to staff concerning the preparation of project EIR/EIS documents, can only be determined once a new decision on the 2010 Revised Final Program EIR is made. See also Standard Response 3 below, which discusses the differences between program-level and project-level environmental analyses, 2008 Final Program EIR, Volume 3, pp 19-2 through 19-5.

Tiering provides for a suitable level of detail in an environmental analysis and allows an agency to “focus upon the issues ripe for decision at each level of environmental review,” i.e., a broad, more general analysis for broad policy choices to be made based on a programmatic EIR and more detailed, site-specific information for decisions to be made to place facilities at specific locations based on a project-level EIR (Public Resources Code, section 21093, subd.(a)). Thus, each EIR will have an appropriate level of detail for the decisions to be made, and there is no requirement to include in a program EIR the more detailed information now being developed for project EIRs. Such a process would lead to confusion and potentially endless loops of analysis, rather than providing the information needed at the appropriate points for a series of decisions.

Finally, the Authority's actions to proceed with project-level EIR development for the Pacheco Pass network alternative do not create an undue bias because they do not prejudice the consideration of alternatives or limit or impinge on the Authority Board's discretion to make a fair policy choice of a network alternative to connect the Bay Area to the Central Valley. The Authority is aware of its duty under CEQA to consider the full record before it in selecting a network alternative for further study, and that it cannot simply reject alternatives because it has invested in early project-level studies for the Pacheco Pass network alternative. The Authority Board will have before it the staff recommendation of a preferred network alternative, as well as information and analysis regarding the full range of network alternatives identified in the 2008 Final Program EIR. The Authority Board will make a new decision after fairly and

fully considering the full record before it, including the extensive public comment contained in the 2010 Revised Final Program EIR.

**STANDARD RESPONSE 3****Level of Detail for Impacts Analysis and Mitigation**

*Numerous comments were critical of the level of detail of analysis in the May 2008 Final Program EIR/EIS and in the 2010 Revised Draft Program EIR. Many comments suggested the level of detail was not adequate for identifying impacts and distinguishing between alternatives. Other comments suggested the Authority could not defer a detailed analysis of impacts and mitigation and needed to revise and recirculate the program EIR to incorporate a more detailed analysis of various impacts and mitigation.*

**Program EIRs and Level of Detail**

The timing of EIR preparation involves a balance of competing factors. The CEQA Guidelines recognize that a lead agency should prepare an EIR “as early as feasible” in the planning process so that environmental considerations can influence the project design, “yet late enough to provide meaningful information for environmental assessment.” (CEQA Guidelines, § 15004, subd. (b).) Tiering of EIRs allows an agency the discretion to strike an appropriate balance between CEQA’s mandate for conducting environmental review as early as feasible and the need to take complex decision making processes one step at a time.

As discussed above in Standard Response 2, the Authority and FRA are intentionally using a tiered environmental review process to make decisions about the HST system in California. The HST system consists of logical linear sections in a chain of contemplated actions that would be carried out under the same authorizing statutory and regulatory authority, each section with similar environmental effects that can be mitigated in similar ways or using similar methods applied at specific sites along the system. The 2005 Statewide Program EIR/EIS, the 2008 Program EIR/EIS, and the 2010 Revised Draft Program EIR are part of the first-tier, program-level environmental analysis to support the Authority’s consideration of broad policy and program alternatives and program-wide mitigation strategies at an early stage of decision making. For the Bay Area to

Central Valley portion of the HST system, the Authority will consider whether to certify the Revised Final Program EIR, and if it does certify the document, then it will consider making the following decisions:

- Choice of a network alternative to connect the San Francisco Bay Area to the Central Valley, i.e., Pacheco Pass, Altamont Pass, or Pacheco Pass with Altamont Pass (local service);
- Choice of alignment alternatives within the selected network alternative; and
- Choice of station location options.

The programmatic level of detail in the May 2008 Program EIR/EIS and the Revised Draft Program EIR is intended to be commensurate with the programmatic nature of the decisions under consideration. More detailed analysis of site-specific environmental impacts and mitigation measures for a more detailed project (selection of specific HST track placement alternative, selection of specific station locations) will be considered in subsequent project-level EIRs/EISs.

**Court Consideration of Level of Detail in Town of Atherton Litigation**

The issue of the appropriate level of detail for the Authority’s program EIR was raised in the *Town of Atherton* litigation. The Superior Court held that the Final Program EIR was adequately detailed for a program EIR with respect to the analysis of biological resources, noise, visual effects, and impacts on mature and heritage trees. (Ruling on Submitted Matter, pp. 10, 13, 14, 16.) The issue for which the Court held additional detail was required involved the description of the project between San Jose and Gilroy and related land use impacts. (*Id.*, pp. 6, 21.) Chapter 2 of the 2010 Revised Draft Program EIR Material provided additional and corrected detail for that portion of the project description and provided additional discussion of the potential for impacts on land use, the Monterey

Highway, and Union Pacific Railroad (UPRR) freight operations in this area. The May 2008 Final Program EIR, as revised by the 2010 Revised Draft and Final Program EIR Material, therefore provides a sufficient level of information for first-tier, programmatic decision making.

### **Sufficiency of EIR Information for Programmatic Decision and Need for Further Revision and Recirculation**

The general level of detail in the EIR's impacts analysis and the general nature of the mitigation strategies are appropriate for the broad decisions to be made. The Program EIR identifies critical environmental impact differences between the Altamont Pass, Pacheco Pass, and Pacheco Pass with Altamont Pass (local service) alternatives for connecting the Bay Area with the Central Valley. The document also reveals differences related to the ability of each option to meet the project purpose, need, and objectives and to be feasibly implemented. These differences are precisely the type of information that is needed for the decision makers to make the overall choice of a network alternative and station locations. The May 2008 Final Program EIR, Chapter 3, "Affected Environment, Environmental Consequences, and Mitigation Strategies," Section 3.0.1, "Purpose and Content of This Chapter," states:

*... The analysis presented in this chapter addresses the general effects of a program of actions that would make up the proposed HST system in the Bay Area to Central Valley study region. This chapter describes the general differences in potential environmental consequences between the No Project and the HST Alignment Alternatives identified in Chapter 2. The analysis also identifies key differences among the potential impacts associated with the various HST Alignment Alternatives and station location options, to support the selection of preferred alignments and station*

*location options in the Bay Area to Central Valley study region.*

The 2008 Final Program EIR does not purport to be able to identify all of the detailed impacts of each alignment or station location option but rather focuses on identifying and describing key differences in potential impacts for each of the alternatives. More detailed analyses will be provided in future project-level environmental documents.

The general level of detail in a program EIR can be frustrating for those who wish to have much more detail up front at the program level; however, the Authority continues to believe its use of CEQA's tiering provisions is appropriate. The purpose of tiering and program EIRs is to allow a lead agency to focus on decisions that are ripe for review at the first tier. In this case, that decision includes the selection of an overall network alternative for the HST system to connect the Bay Area to the Central Valley based on the information gathered and assessed at a program-level of detail. While second-tier, project-level information has been and continues to be generated in the program EIR study area, the existence of that information does not convert the Authority's program-level decision into a project-level one. Rather, under CEQA's tiering rules, a detailed analysis of impacts and mitigation based on detailed project design is appropriately deferred to second-tier EIRs. Project-level information does not trigger another round of revision and recirculation but rather is appropriately addressed in project-level EIRs.

**STANDARD RESPONSE 4****Comments about the Ridership Forecasts**

*Many comments expressed concern about the ridership forecasts used in the Bay Area to Central Valley Program EIR. Some comments expressed confusion about how the ridership forecasts were derived, as well as the existence of different forecast results prepared for the Program EIR/EIS and the 2009 Business Plan. Many commenters expressed concern that the ridership forecasts were exaggerated or overly optimistic, or lacked an adequate peer review. Many suggested that the forecasts needed to be redone to account for changed economic conditions. Other comments questioned the ridership forecasts on a more technical basis, suggesting that certain parameters of the model were incorrect in a manner that rendered the model a flawed tool for forecasting.*

The ridership forecasts used in the 2008 Final Program EIR are not an area identified by the Superior Court for additional work to comply with CEQA. The Authority recognizes, however, that the ridership forecasts for the HST system as a whole and for the Altamont and Pacheco network alternatives are the subject of considerable public interest in light of the many comments received on this topic. This Standard Response is intended to provide a single basic response to the collective set of comments, both general and technical.

At the outset, the Authority does not agree with the general statements in numerous letters that the ridership model is flawed, the forecasts inaccurate, or that the ridership forecasts need to be revised as part of further recirculation of the Program EIR. The California High-Speed Rail Ridership and Revenue model (HSR R&R model) is a complex system of dozens of interrelated, state-of-the-art model components that span different geographies, different trip purposes, and different travel market segments. The model reflects an appropriate blend of theory and judgment, which is always required in real-world applications of travel forecasting models. The model produces realistic results that are sensitive to the key input

variables, and is an appropriate tool for the environmental review purpose for which it has been used. No revisions are necessary.

**Development of the Ridership and Revenue Forecasting Model**

The High-Speed Rail Ridership and Revenue Forecasting Study, which was led by the Metropolitan Transportation Commission (MTC), was a state-of-the-art transportation modeling effort designed to portray what future conditions might look like in California with and without a high-speed train. The study was performed by experts in the field of transportation modeling, Cambridge Systematics, Inc. (CS), and took roughly two years to complete. The resulting ridership and revenue forecast provided, and continues to provide, sound information that the Authority has considered in its planning decisions.

The objective of the study was to develop a new statewide network-based travel demand model that would serve a variety of planning and operational purposes:

- Evaluating high-speed rail ridership and revenue on a statewide basis;
- Evaluating potential alternative alignments for high-speed rail in and out of the San Francisco Bay Area;
- Providing a foundation for other statewide planning purpose, including high-speed rail alignment analysis, and for regional agencies to better understand interregional travel.

The purpose of travel demand models like the HSR R&R Model is to forecast future travel patterns and demand as a function of variables such as population and employment, travel time and cost, fuel costs, rail and airline schedules, etc. Travel demand models provide valuable tools to assist planners and policy makers in analyzing the costs and benefits of various transportation alternatives since they



provide consistent and reproducible forecasts of future travel based on the input assumptions. The HSR R&R Model was developed using accepted modeling practices, and has served as a state-of-the-practice tool to support the Authority's planning efforts.

### Travel Surveys Used for Model Development

Some comments questioned the representativeness of the survey data used for the model estimation. It has been suggested that only one of the surveys used for the model estimation, the California Statewide Household Travel Survey from a 2000-2001 project performed for Caltrans "meets the criteria of a California based random sample of trip mode choices." Such a statement is misleading on two fronts:

1. It presupposes that a survey drawn from a purely random sample of the entire population will always produce representative results; and
2. It further presupposes that other survey techniques cannot produce representative results after adjusting for characteristics of the sampling frame.

Both suppositions are incorrect.

Regarding the first supposition, random sample surveys of the entire population are a notoriously poor technique for gathering information on market segments that represent a relatively small portion of the portion. Such is the case with interregional air and rail travelers, which account for 10.9% and 1.1%, respectively, of observed interregional mode share in California (Cambridge Systematics 2006, Table 5.2). The California Statewide Household Travel Survey is a good example of this potential problem. Of the 17,000 households that were randomly surveyed, a mere 25 interregional trips were made by air passengers and rail riders combined. As a result, the California Statewide Household Travel Survey produced a survey dataset in which 94.5% of observed interregional long trips were made by auto, and only 2.2% of such trips were made by air or rail (Cambridge Systematics 2007a, Table 2.2) (compared to 12% in the general population). This "random

sample survey" did not produce a dataset that was representative of general travel preferences of Californians.

Regarding the second supposition, the assumption that only a random sample survey can be used for model estimation is incorrect. The use of targeted sampling procedures and discrete choice analysis have been developed and widely used, in part, to address the difficulty and cost of collecting sufficient data for model estimation using simple random sampling techniques (Manski and Lerman 1977, Ben-Akiva and Lerman 1985).

For this project, the survey dataset from the California Statewide Household Travel Survey was enriched by a new data collection effort. Approximately 3,000 new stated-preference surveys were collected reflecting travel by auto, rail, and air. These new observations were collected using a proven technique known as "choice-based sampling." Instead of randomly calling respondents at their homes, surveys were conducted on trains and at airports by randomly intercepting these travelers. These surveys were used to enrich the larger random sample by including more statistically significant response rates from segments of key interest to the project at hand.

However, since more observations were collected from rail riders and air passengers than their share of the interregional travel market, an adjustment had to be made once the models were estimated. The adjustment process is called a "calibration of mode constants." By calibrating mode constants, travel market shares are adjusted to reflect the true market shares in the population. The model development team employed a method that has been proven, has been used widely and consistently to calibrate models, and is well established in literature and in practice.

In summary, a large randomly sampled survey data set was enriched using a supplemental survey to meet project objectives, and to reflect and quantify the decisions made by rail riders and air passengers. In addition, the model development team used the most tested and best available approach to calibrate the model to be more representative of the population. These methods were, and continue to be, both sound and appropriate.

### Peer Review Process

Peer review is considered a “best practices” technique when developing travel demand models like the HSR R&R Model. Peer review provides “an objective assessment of a travel demand model with respect to state-of-practice and agency modeling goals (Federal Highway Administration 2010b).” A peer review process helps ensure that the modeling team’s technical processes meet an agency’s needs, and also meet the standards of professional practice (U.S. Department of Transportation 2010). Importantly, a good peer review process will provide up-front guidance to the model development team on key issues such as intended use of the model, basic model structure, survey design and sampling plan, model estimation results, and reasonableness of validation. While a peer review process may also review and comment upon the reasonableness of model results, peer review generally does not approve or accept specific model details.

The High-Speed Rail Ridership and Revenue Forecasting Study incorporated a robust peer review process at multiple stages of model development. The peer review panel was comprised of international modeling and high-speed rail experts from academia, public agencies, and the private sector. Interaction with the panel occurred on three occasions, with panel members providing technical guidance for the model design, model development, and the resulting forecasts of ridership and revenue. Comments from the first peer review panel meeting resulted in changes to the proposed approaches to the model structure, the survey data collection plan, and to the proposed performance measures. Comments from the second peer review panel meeting resulted in changes to different aspects of the interregional model – including constraining of coefficients - and to the forecast assumptions. The third peer review exchange focused on model validation and the final ridership and revenue forecasts. In summary, the High-Speed Rail Ridership and Revenue Forecasting Study integrated peer review at multiple stages. The overall model structure, details, input variables, and the resulting ridership and revenue forecasts were products of an extensive peer review process.

### Final Ridership and Revenue Model

The final HSR R&R model was developed through a standard process of model estimation, calibration, and validation. This development process began in early 2005 and concluded in February 2007. Only one fully developed model has ever existed, and this model has been used to prepare all forecasts. Importantly, model constants and coefficients were final as of February 7, 2007, prior to the development of any forecasts used in the Program EIR/EIS, and did not change after that date.

A number of comments have been offered related to the constraining of coefficients and constants during the model development process. In the development and application of practical travel demand models, it is often the case that various sources of data need to be reconciled with different or conflicting empirical evidence from the model estimation. In these cases, it is absolutely necessary to use analyst judgment to reconcile different data and arrive at the most practical model possible. The decision to constrain certain coefficients was made neither unilaterally nor arbitrarily, but was based on the best available data, published literature, and accepted practice.

These judgments were further scrutinized by peer review during the model development process. The peer review panel reviewed coefficients that were produced through initial model estimation. The panel extensively debated the coefficients and variables, and offered feedback and guidance to the model development team in full knowledge that coefficient values could change through the process of model calibration and validation and that the constants would be finalized at a later date. The model development team proceeded with normal model calibration and validation activities to address the panel’s feedback and develop the final model. These activities and the final model included adjustments to the coefficients and estimation of a variety of model constants.

Constraining variables is a common practice in travel model development. Model coefficients are constrained when estimation results are clearly unrealistic or when constraining provides more realistic results during the model calibration and sensitivity testing

process. The Federal Transit Administration (FTA) accepts this practice for Section 5309 New Starts applications and, in its guidelines, provides reasonable ranges for model coefficients relating to travel time and travel cost. While FTA accepts values outside of the specified ranges, they require New Starts applicants to “provide compelling evidence” if a model coefficient is outside of a specified range (Ryan 2004).

Comments regarding the level of constraint have generally focused on the coefficient for service headway being constrained to be equal to the coefficient for in-vehicle travel time. Comments have incorrectly related headway to the average wait time that results from service headways. The headway coefficient is not a coefficient on average wait time. The impact of average wait time for specific modes (air, conventional rail, and high speed rail) has been included in mode specific constants for those modes. Instead, headway represents a convenience measure and should not be related to average wait time coefficients used in urban transportation modeling or other high speed rail models that use different model constructs. Accordingly, the headway coefficient was constrained, and as a result reflects the unique case of high-speed trains that offer far more frequent interregional service than is currently available on conventional intercity rail services such as Amtrak. The adjustment made to the headway coefficient was within the range of reasonable values presented to peer review during the model development process.

### **Evolution In Input Assumptions and Ridership and Revenue Forecasts**

According to the base travel demand forecast prepared using the HSR R&R model, the HST system would carry at least 88 million passengers per year by 2030. This forecast assumes current costs for air and automobile transportation would remain constant in real value, and that the state's economy would grow in-line with long-term projections that existed in 2006. HST service plans were also adjusted to satisfy the new forecast for high-speed train travel demand. Ridership and revenue sensitivity analyses were also performed using different assumptions for a 50% real increase in the

costs for air and automobile travel, which resulted in a high forecast of potential ridership for the HST system of 117 million annual passengers for 2030.

The high ridership forecast of 117 million intercity trips served as the representative worst-case scenario for analyzing the potential environmental impacts from construction and operation of the HST system through 2030. This high forecast was generally used to define and develop the HST alternatives and was referred to in the Program EIR/EIS as the “representative demand.” In some specific analyses (e.g., energy, air quality, and transportation), the HST system would result in potential benefits. In those cases, the base ridership forecast of 88 million served as the representative demand scenario for analysis in the Program EIS/EIR.

Since the time that the ridership and revenue forecasts were completed for the Program EIR/EIS in 2007, project development activities have continued on the HST project throughout California. These activities have included additional ridership and revenue forecasts using operating, fare, and population inputs that vary from the assumptions used in the Program EIR/EIS. One example of such different forecasts is illustrated by the 2009 Business Plan, which incorporated an HST operating plan with more off-peak service and updated travel times, new assumptions regarding potential parking costs at airports and HST stations, and higher HST fares than assumed in the Program EIR/EIS.

Such changes in assumptions are a normal and expected part of project development, and do not necessitate revisiting decisions reached under prior assumptions. For example, the Federal government understands that assumptions and plans regarding projects and ridership forecasts may change as a project moves through the NEPA and planning processes. One key example of this relates to the FTA New Starts process, illustrated by regulations documented in 49 CFR 611.7; the New Starts process is often integrated with EIS preparation and other project development activities. Those regulations establish a sequence of studies progressing from alternatives analysis, to preliminary engineering, to final design. It is expected throughout the planning and project

development phases that assumptions will be continually refined. In fact, FTA is now requiring updated information to be incorporated as it becomes available - for example new ridership and other surveys. Also significantly, Federal approval to initiate preliminary engineering will be considered only after alternatives analysis is complete and the NEPA process has been initiated. Further, Federal approval for final design will be considered only if preliminary engineering is complete and the NEPA process has been completed through a Record of Decision. For preliminary engineering and final design, FTA "approval will be based on the results of its evaluation as described in Parts §§ 611.9–611.13 of this Rule." The evaluation criteria include mobility improvements, environmental benefits, operating efficiencies, transportation user benefits [which are based on ridership forecasts], and land use and economic development impacts. Part §§ 611.9 further states, *"As a candidate project proceeds through preliminary engineering and final design, a greater degree of certainty is expected with respect to the scope of the project..."* [emphasis added]."

More recent guidance from the Federal Highway Administration furthers this point, explaining that: "[t]he project development process can be long, with varying levels of forecasting detail typically necessary at different stages in the process... (Federal Highway Administration 2010a)." This guidance provides examples of project screening, alternatives analysis, and EIS preparation.

### Ridership Forecasts and Changing Economic Conditions

Some comments have suggested that ridership forecasts should be redone to reflect the current economic recession. Regeneration of ridership and revenue forecasts is not necessary since the forecasts are for year 2030 and beyond, and rely upon long-term economic and demographic assumptions that are generally unaffected by short-term variations in economic performance. The most current long-term, statewide projections are substantively similar to the values used in the Program EIR/EIS:

- Year 2030 Population: Current statewide projection is 49,240,891 (California Department of Finance 2007). Projection

used in the Program EIR/EIS was 48,110,671 (California High-Speed Rail Authority and Federal Railroad Administration 2008, Table 5.3-5).

- Year 2030 Employment: Current statewide projection is 26,338,021 (Woods & Poole Economics 2009). Projection used in the Program EIR/EIS was 28,617,864 (California High-Speed Rail Authority and Federal Railroad Administration 2008, Table 5.3-5).

Importantly, all of the ridership and revenue forecasting conducted for the Program EIR/EIS used identical assumptions for all alternatives, allowing each alternative to be tested in an unbiased manner so that the related benefits and impacts could be estimated and compared across alternatives. For example, all forecasts were developed with the same population and employment projections, fuel costs, air and rail fares, parking cost assumptions, intercity air and rail frequencies and travel times, etc. The only difference, which was a function of the definition of the network alternatives, related to the number of HST trains that operated to the different Bay Area termini.

### UC Berkeley Critique

As mentioned in a number of comments, over the last several months UC Berkeley's Institute for Transportation Studies (ITS) has conducted a critique of the HSR R&R model. The ITS Final Report of the critique was provided to the California High-Speed Rail Authority on June 30, 2010. The basic conclusion of the ITS Final Report was that CS "followed generally accepted professional standards in carrying out the demand modeling and analysis," but the HSR R&R model has various alleged flaws. One of the ITS Final Report authors presented the ITS findings to the Authority board at its July 2010 meeting. CS offered its own presentation responding to the ITS Final Report and disputing the conclusions in the ITS report. The Authority board will have the full record of this information before it in conjunction with its anticipated consideration of whether to certify the Revised Final Program EIR and to make a new decision on a preferred HST network alternative for connecting the San

Francisco Bay Area and the Central Valley (California High-Speed Rail Authority 2010a).

Forecast results suggest that HST is most competitive in intermediate to long-distance California markets where it offers:

- Much faster travel times than the lower cost and more convenient auto mode, particularly for people traveling in groups;
- Much faster travel times and higher frequencies than the lower cost conventional rail mode; and
- Equivalent door-to-door travel times and frequencies as the more expensive air mode.

For example, ridership forecasts prepared for the Program EIR/EIS show that more than one-third of the trips between the Los Angeles Basin and Bay Area choose HST; in this market, HSR takes approximately the same door-to-door time as air but costs about half as much under assumptions used in the Program EIR/EIS. For trips between the Bay Area and Central Valley, HST is most competitive for trips that begin or end in the southern Central Valley between Fresno and Bakersfield; in this submarket, HST has a 33% mode share for Pacheco and 27% for Altamont. The submarket between the Bay Area and northern Central Valley is dominated by the auto mode (about 95% mode share), which is about an hour (or less) slower than HST but costs about half as much; the HST mode share for this market is 4% for the Altamont scenario and 2% for Pacheco. HST is also not as competitive as auto for travel within the Central Valley, with HST capturing 4% of the market for the Altamont scenario and 3% for Pacheco.

HST is projected to draw about 98% of its interregional ridership from diversion of auto, air, and conventional passenger rail trips around the state; this portion of HST's projected ridership would exist on the system even if HST were not built. About 75% of this diversion will come from auto, 13% from intra-state air, and 12% from conventional passenger rail.

As noted earlier, in base forecasts prepared for the Program EIR/EIS, the California HST system averaged in the neighborhood of 88 million annual passengers in year 2030. This statewide ridership projection and the HST market shares noted in preceding paragraphs are logical given observed HST ridership patterns around the world.

For example, in Japan, the 343-mile Tokaido high-speed train line connecting Tokyo to Osaka currently carries over 145 million passengers annually. The entire Japanese high-speed train network (1,350 miles) currently carries over 335 million passengers a year. In France the TGV network, consisting of over 1,160 miles of new interconnected high-speed lines, carries over 100 million passengers each year. The Korean KTX trains travel on 420 miles of track carrying over 37 million passengers per year.

In Japan, the Shinkansen has been a very effective competitor with air transportation at distances up to 600 miles. In the market between Tokyo and Osaka (the two largest metropolitan areas in Japan), the Shinkansen carries approximately 81% of the air-rail market. Where the Shinkansen trip time is under two and a half hours, HSR captures at least 75% of the air-rail market. It is not until distances exceed roughly 600 miles (trips of four or more hours) that air travel exceeds the HSR market share.

In Europe, HSR has also captured major shares of air plus rail traffic in many markets (Travel Industry Wire 2007):

- In France, rail held 22% of the combined Paris-Marseille air-rail market before TGV Mediterranean went into service (2001), but in four years that market share rose to 65%. In 2006 it rose to 69% and EasyJet abandoned its Paris-Marseille flights.
- Spain's AVE has 53% of air/rail/road traffic on the Madrid-Seville route.
- The Madrid-Barcelona AVE route has gained 80% of the air/rail market since opening in February 2008.
- The Thalys between Paris and Brussels holds 52% of air/road traffic; after the high-speed rail line went into service, airlines discontinued flights Paris-Brussels.

- Eurostar has more than 70% of London-Paris market, 64% on London-Brussels.

Overall, the ridership projections for the California HST system are quite reasonable and logical when compared to international experience, particularly considering the larger size of the California travel market compared to many of these international examples (California High-Speed Rail Authority 2010b, pp. 16-17).



### Availability Of Ridership Information

It is not possible to convey all of the ridership model and forecast information in the body of an EIR. Key comparative ridership information that identifies substantive differences between network alternatives was included in the Summary and Chapters 2 and 7. Remaining ridership results and documentation of the methodology used to obtain projected ridership have been included in a series of technical reports that are posted on the Authority website:

- The model design was described in several publicly available documents during its development: Model Design, Data Collection, and Performance Measures Technical Memorandum (May 2005); Levels-of-Service Assumptions and Forecast Alternatives (August 2006); and Interregional Model System Development (August 2006); Statewide Model Validation, Final Report (July 2007).
- The surveys and other data used to estimate, calibrate, validate and apply the model are discussed in High-Speed Rail Study Survey Documentation (December 2005); Bay Area/California High-Speed Rail Ridership and Revenue Forecasting Study, Socio-Economic Data, Transportation Supply, and Base-Year Travel Patterns Data (December 2005); and Statewide Model Validation, Final Report (July 2007).
- The model and its development are summarized in Bay Area/California High-Speed Rail Ridership and Revenue Forecasting Study, Final Report (July 2007).
- Validation of the model is summarized in Bay Area/California High-Speed Rail Ridership and Revenue Forecasting Study, Statewide Model Validation, Final Report (July 2007).
- The ridership and revenue forecasts generated from the model are documented in Bay Area/California High-Speed Rail Ridership and Revenue Forecasting Study, Ridership and Revenue Forecasts, Final Report (August 2007).

Some comments have questioned why certain components of the HSR R&R model (particular constants and coefficients), were revised,

but the final component values were not published in a final report. As stated above, it is universal practice in the industry to calibrate a model in a dynamic, rapidly-paced process that tests dozens of different options. Although MTC did not issue a report detailing all components of the final model, which is consistent with professional practice, it is the Authority's understanding that the ridership and revenue model, including the final constants and coefficients, has been publicly available directly from MTC since the study was completed in 2007. Any member of the public who wished to have access to the model could make a request to MTC, which had modeling experts on staff that could assist with making the model available. It is also the Authority's understanding that some entities, including representatives of Caltrans, the University of California at Davis, the University of California at Berkeley, and the University of Calgary, have requested and received some or all of the model files.

### Conclusion

In summary, the model development approach used widely accepted methods and professional standards reflecting the theory and practice of model estimation, validation, and application. The resulting model is policy-sensitive. It allows the Authority to address questions related to alignments and to levels of service. Its sensitivity to a range of different policies has been tested successfully. This sensitivity is the best proof of a carefully developed and calibrated model. It ensures that the HSR R&R model has and will continue to provide the Authority with valuable information in the planning decision-making process.

The HST ridership and revenue forecasts prepared by MTC in partnership with the Authority concluded that both the Pacheco Pass and Altamont Pass network alternatives have high ridership and revenue potential. While additional forecasts with different assumptions may result in somewhat different results, the bottom-line conclusion is expected to remain the same, and therefore ridership was not a major factor in differentiating between the Altamont Pass and Pacheco Pass alternatives.

**STANDARD RESPONSE 5****Noise and Vibration Impacts**

*Many comments requested additional information about potential noise and vibration impacts and mitigation related to the implementation of the HST system. Numerous comments identified information that has been or is being generated during project-level EIR/EIS work for the San Francisco to San Jose and San Jose to Merced sections of the high-speed train system and commented that such information should be considered as part of the current program EIR process.*

These comments request detailed information that cannot be known at the program level because the project design and engineering has not progressed to the point where that analysis can be completed. The project-level EIR/EIS noise and vibration studies will provide a detailed assessment of the potential effects of the HST operations on land uses along the proposed alignments and around stations and other facilities. The studies will be conducted in accordance with the Federal Railroad Administration (FRA) procedures presented in the High-Speed Ground Transportation Noise and Vibration Impact Assessment Report prepared October 2005, referred to herein as the FRA Guidance Manual.

**Program-Level Analysis of Noise and Vibration**

The sufficiency of the program level analysis of potential noise and vibration impacts from the HST system, as included in the 2008 Bay Area to Central Valley Final Program EIR, was challenged and was reviewed by the Superior Court in the *Town of Atherton* case. The Court's ruling in the *Town of Atherton* case concluded that the Final Program EIR contains an adequate level of detail for programmatic analysis regarding the noise and vibration analysis, noting that the Authority had proceeded in accordance with the FRA Guidance Manual and that more detailed mitigation strategies would for noise and vibration impacts would be developed in the next stage of environmental analysis. (Revised Draft Program EIR, Appendix A, Ruling on Submitted Matter, p. 13.) The Court's ruling noting a

defect in the Authority's findings regarding vibration impacts. This is an issue to be addressed in the Authority's future decision on the Final EIR and its selection of a corridor and stations to connect the Bay Area to the Central Valley portion of the HST system.

The FRA Guidance Manual reflects the result of research conducted for the FRA and is presented as part of FRA's efforts to provide guidance in the consideration of HST as a transportation option in those intercity corridors where it has the potential to be a cost effective and environmentally sound component of the intermodal transportation system.

Experience during previous environmental impact reviews of high-speed rail projects has shown that possible increases in noise and vibration are frequently among the potential impacts of most concern to residents in the vicinity of the proposed project. With growing interest in HST projects, FRA saw a need to provide guidance and procedures to assist in the evaluation of potential noise and vibration impacts from such projects. The guidance also provides information on ways in which project design can incorporate measures to reduce impacts to address concerns, and guidance in evaluating potential mitigation. The methodology and procedure presented in the FRA Guidance Manual addresses program and project-level review of noise and vibration impacts related to HST systems.

The noise analysis in the Program EIR/EIS broadly compares the relative difference in potential impacts among the alternatives. Two basic techniques were used for analysis of HST: a screening analysis and a more specific analysis of typologies derived from representation HST locations. The screening analysis is based on the methods presented in Chapter 4, Initial Noise Evaluation, of the High-Speed Ground Transportation Noise and Vibration Impact Assessment Guidance Manual, October 2005 (FRA Manual). The Program level analysis identified the potential impacts of each

alignment alternative and station locations by project corridor. Mitigation strategies that would be used to reduce impacts were identified and subsequent detailed analysis was described to be prepared as part of the project EIR/EIS. These analyses will be done in accordance with the FRA Guidance Manual and will include a detailed noise and vibration assessment study of the effects of the HST operations. These operations will include the noise and vibration generated by the train operations, traffic noise generated at the HST stations, parking facilities, and at the maintenance facilities. Where calculations indicate that the HST operations may exceed the FRA Noise and Vibration impact criteria mitigation measures would be evaluated during the project-level studies, engineering refinement and design of the project.

#### **Future Project-Level Analysis of Noise and Vibration**

During detailed noise impact analysis noise sensitive receivers are identified within screening distances of proposed alignments. The screening distances are based on existing noise environment (urban, suburban, or rural/less developed), if the alignment is in or adjacent to a railroad corridor, highway corridor, or through a rural corridor, and speed of the train. These noise sensitive receivers consist of parks, residences and buildings where people sleep such as hotels and motels, institutional land uses with daytime and evening use, such as schools, places of worship, and libraries, and business uses that depend on quiet as an important part of operations, such as sound and motion picture recording studios. Noise measurements are conducted at these representative receivers within the screening distances to determine the ambient existing noise environment. These measured ambient noise levels are the basis of the FRA Noise Impact Criteria which is used to determine if a noise impact would occur at the receivers being studied.

The projected noise from the HST train operations is calculated using the methods in the FRA Guidance Manual. These calculations would reflect the type of HST (electric), expected train speeds, type and elevation of trackwork, distance to the receiver, ground terrain, and shielding provided by buildings between the receiver and the trackwork. Similar calculations are prepared for traffic noise. The

projected future noise levels of the HST operations are compared to the existing ambient noise to determine if the receivers being studied would be impacted. At locations where impacts are identified as likely to exceed federal criteria mitigation measures such as noise barriers will be evaluated for their potential to reduce the projected noise levels to receivers. The potential for “startle” effects will be considered and noise effects on livestock and wildlife will also be considered using the FRA criteria.

Receivers that could be affected by vibration from HSTs are identified using the FRA screening distances. The FRA Vibration Impact Criteria are used to establish the limits of vibration at each of the receivers being studied depending on their land use activities and expected train speeds. These FRA criteria address buildings where ambient vibrations must be kept low, such as research facilities and hospitals with diagnostic equipment; residential land uses and buildings where people sleep, such as hospitals; and institutional land uses including schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference. It is extremely rare for vibration from train operations to cause any sort of building damage. Any potentially fragile historic buildings located near a proposed alignment will receive case by case review in the project-level studies pursuant to the FRA Guidance Manual and the standards set by the Secretary of the Interior for historic structures.

At receivers that are already within close proximity to existing rail corridors, vibration measurements will be conducted to establish the existing conditions.

At each of the receivers being studied, vibration generated by the HST is calculated using the FRA reference ground-borne vibration levels for an electric motor unit (EMU) high-speed trainset similar to the trainset design that is likely to be used for the CAHST System. These reference vibration levels are adjusted by the ground attenuation of the ground between the track and the receiver. The ground attenuation is a measured value that represents the local conditions along the alignment for varying distances from the track.

The predicted future HST vibration levels are compared to the FRA Vibration Impact Criteria or for those receivers that are already exposed to rail activities, the existing ambient vibration levels, to determine if an impact would occur. Where impacts are identified, mitigation measures in the form of resilient rail design will be included as part of the final project design.

Potential noise and vibration impacts during construction will also be assessed. Noise and vibration limits during construction will be established by the Authority which will consider the land use activities adjoining the construction sites. These criteria will be developed with consideration to local noise ordinances that limit the hours or noise levels of construction. Noise control measures that will be imposed on the Contractor to mitigate impacts could include shielding between the construction sites and the impacted receivers and limiting the operations of noisy or vibratory equipment to certain hours of the day.

**STANDARD RESPONSE 6****Effect of the Project on Property Values, Communities, and Quality of Life**

*Numerous comments express fears, concerns, and opinions that planning for the HST system will result or has resulted in a drop in property values for properties along the existing Caltrain corridor. Numerous comments also express concerns regarding effects on communities along the Caltrain corridor from implementing the HST system, anticipating negative impacts on the quality of life in these communities.*

The Authority acknowledges the comments expressing fear and concern over potential negative effects and diminishing property values due to the implementation of the HST system. The Authority is working with more than 100 communities across the state, values their feedback so that the best possible HST system can be developed, and will be addressing the specific mitigation needs of individual communities in project-level EIRs for individual geographic sections of the HST system, as the details of the system are more fully developed. The Authority believes that the HST system will provide substantial economic and environmental benefits to the state as a whole and to the communities it crosses—benefits in creating jobs, reducing air pollution and improving air quality, improving safety and circulation with grade separations, and providing a new transportation option that will relieve congestion on highways and airways. Recent reports, including from the United States Conference of Mayors and from CalPIRG, as well as information on the effects of Japan's Shinkansen system, confirm the generally expected economic benefits to be derived from the HST system (United States Conference of Mayors 2010; CalPIRG 2010). In addition, studies have indicated that in various communities the addition of rail transit has resulted in increased property values for areas near and having access to transit, due to increased access to jobs, services, and activities (Cervero and Duncan 2009). Rail transit has also resulted in increased development opportunity and economic activity for these communities. While some negative effects may be noted, the positive effects generally tended to

outweigh the negative, and the studies suggest design approaches to reduce and minimize potential negative effects. Design refinements, community-specific impact studies, and detailed mitigation measures are all matters to be addressed in future project-level environmental studies and engineering design.

The Authority appreciates the comments identifying concerns with social and economic issues related to the proposed HST system in the Bay Area to Central Valley study area. The project's potential impact on individual property owners, as well as on neighborhoods and communities, along the proposed network alternatives continues to be an issue of considerable public and community input, as well as an issue of great concern to the Authority. Such concern is heightened during times of economic difficulty at local, state, and national levels. Anecdotal information of real estate sale prices lower than previous sale prices is evidence of such economic difficulty, is thought to result from multiple factors that cannot be analyzed here, and is not thought to be caused by planning and conducting environmental studies for the HST system. All of these comments will be considered by the Authority Board in making decisions based on the extensive record for the 2008 Final Program EIR, as well as the 2010 Revised Draft and Final Program EIR Material. These issues would be further considered during project-level studies.

At the same time, an important consideration under CEQA is that an EIR is required to focus on the potential significant effects of a proposed project on the *environment*. "[E]nvironment" in this context means the physical conditions which exist within the area that will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, and objects of historic or aesthetic significance. Unlike physical changes from a proposed project, "[e]conomic and social changes resulting from a project shall *not* be treated as significant effects on the environment." (CEQA

Guidelines, § 15064(e).) Economic and social information may be included in an EIR in whatever format the lead agency finds appropriate. (CEQA Guidelines, §§ 15131(a), (b); 15382.) The May 2008 Final Program EIR and the 2010 Draft and Final Revised Program EIR Material therefore appropriately focused the discussion on the project's potential to impact the physical environment. Comments expressing fear of future changes were not supported by evidence of physical impacts. Issues of community impacts, aesthetic impacts, and other physical effects resulting from the HST system at specific locations and associated with specific HST profiles and operational characteristics will be studied in detail in project-level EIRs for each part of the system.



**STANDARD RESPONSE 7****Project Eminent Domain Issues**

*A number of comments express fear and concern regarding the Authority's potential need to acquire properties in order to implement the HST system and the potential that as a result of property acquisition the project would displace numerous residents and businesses from such acquired properties. Other comments expressed concern for potential future hardship and disruption to businesses and communities during system construction.*

The Authority has sought to use existing transportation corridors, like the Caltrain corridor, to the greatest extent feasible to minimize environmental impacts and property acquisition needs related to the project. The 2010 Revised Draft EIR Material identifies some limited right-of-way acquisition that could be needed along the Caltrain corridor between San Francisco and San Jose in some narrow areas. The amount of property and the specific parcels that may ultimately be needed can be determined only in the future after project-level studies and decisions on the final placement and profile (i.e., at-grade, elevated, or below-grade) of the proposed facilities. The Authority Board committed in July 2008 to investigate profile alternatives to avoid and minimize potential impacts, including property impacts, by considering trench, tunnel, aerial, and at-grade alignments between San Francisco and San Jose.

Although the Authority rescinded its July 2008 program decision, and will make a new decision, it has been examining profile alternatives carried forward into the project-level analysis. Specific property that may be necessary to implement a particular project-level alignment alternative will be addressed during the project-level environmental process. Because this is a program-level document, the analysis considered the potential for property acquisition on a broad scale. During the project-level reviews, the analysis of alternatives will identify the residential and nonresidential properties that could be

affected and all locations at which property acquisition, full or partial, would be needed for particular alternatives. The project-level EIR/EIS will include a comprehensive description of relocation impacts and relocation resources, and a Relocation Impact Report will be prepared for the project.

Eminent domain is the government power to acquire private property for public use and to compensate property owners based on the fair market value of their property taken by the government. (United States Constitution, 5th and 14th amendments; California Constitution, Article I.) Any property acquisition and relocation efforts by the Authority will be required to comply with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Act) of 1970 as amended and Title VI and Title VIII of the Civil Rights Acts of 1964 and 1968, respectively. Any such efforts must follow the completion of project EIRs and the decisions to be made by the Authority about the placement and design of facilities in the system. To provide additional information to the public, the Authority has prepared and posted on its website in English and Spanish a pamphlet titled "Your Property, Your High-Speed Rail Project" (California High-Speed Rail Authority 2009d). The pamphlet is listed in the website Library under the topic "Right of Way."

In addition, project-level studies will include a detailed assessment of potential disruption to businesses and communities during project construction, evaluation of construction phasing and staging needs and impacts, and detailed mitigation plans to address impacts of construction on traffic, circulation, and property access. Such detailed assessments can be provided only when additional design and engineering detail is developed for the project-level studies.

**STANDARD RESPONSE 8****The Authority's Business Plan**

*The Authority received many comments that relate to the Authority's Business Plan rather than to the 2010 Revised Draft Program EIR. Many of these comments made general statements, such as "the Business Plan is inadequate" "the Business Plan is flawed," or state that the Authority must have a realistic and defensible business plan. Some comments questioned specific content of the Business Plan or identified information they felt was missing from the plan. Other comments suggested that the Authority had not satisfactorily established the "business case" for constructing the HST system. The Authority does not interpret comments on the Business Plan as comments on the environmental analysis in the 2010 Revised Program EIR. To the extent that the public comment on the Business Plan can be construed as a comment on the HST project as a whole, or the HST project in the Bay Area to Central Valley study area, the Authority provides the following response.*

Since the Authority's July 2008 decisions based on the 2008 Final Program EIR, the Authority has prepared two Business Plans and one Business Plan Addendum. The first of these, published in November 2008 (California High-Speed Rail Authority 2008)<sup>1</sup>, updated the Authority's first Business Plan from 2000. The 2008 Business Plan was intended to provide a credible, experience-based estimate of the HST system's financial and economic outlook at that time. The 2008 Business Plan provided information on financial and economic studies that had been developed.

The Legislature included in the 2009/2010 Budget Act a requirement that the Authority submit a business plan document to the Legislature by December 15, 2009. Subsequent legislation signed

<sup>1</sup> The following documentation has been publicly available on the Authority's website: California High-Speed Train Business Plan (November 2008); Business Plan 2008 Source Documents (November 2008); 2009 Business Plan Report to the Legislature (December 2009); Addendum to the California High-Speed Rail Authority's Report to the Legislature (April 2010).

into law requires the Authority to submit a revised business plan to the Legislature every 2 years. (Public Utilities Code, § 185033.)

The Authority prepared a Business Plan and submitted it to the Legislature in December 2009 (California High-Speed Rail Authority 2009c) to comply with the 2009/2010 Budget Act requirements. The content of the 2009 Business Plan included a general discussion of the HST system and anticipated ridership, revenues, project costs, and financing options. The 2009 Business Plan also included a discussion of risk that could jeopardize the project. The content of the 2009 Business Plan was intended to address the specific issues identified by the Legislature in the 2009/2010 Budget Act and included a section at the end identifying how the required topics were addressed. In April 2010, the Authority submitted to the Legislature an addendum to the 2009 Business Plan with additional information to answer questions and issues raised by the Legislative Analyst's Office and legislative oversight bodies (California High-Speed Rail Authority 2010b).

As required by Public Utilities Code, § 185033, the Authority must submit a Business Plan to the Legislature on or before January 1, 2012, and every 2 years thereafter. The statute identifies the required content of future plans:

*"The business plan shall identify all of the following: the type of service the authority anticipates it will develop, such as local, express, commuter, regional, or interregional; a description of the primary benefits the system will provide; a forecast of the anticipated patronage, operating and maintenance costs, and capital costs for the system; an estimate and description of the total anticipated federal, state, local, and other funds the authority intends to access to fund the construction and operation of the system; and the proposed chronology for the construction of the eligible corridors of the statewide high-speed train system. The*

*business plan shall also include a discussion of all reasonably foreseeable risks the project may encounter, including, but not limited to, risks associated with the project's finances, patronage, right-of-way acquisition, environmental clearances, construction, equipment, and technology, and other risks associated with the project's development. The plan shall describe the authority's strategies, processes, or other actions it intends to utilize to manage those risks."*

*"In addition to the requirements of subdivision (a), the business plan shall include, but need not be limited to, all of the following elements:*

- (A) Using the most recent patronage forecast for the system, develop a forecast of the expected patronage and service levels for the Phase 1 corridor as identified in paragraph (2) of subdivision (b) of Section 2704.04 of the Streets and Highways Code and by each segment or combination of segments for which a project level environmental analysis is being prepared for Phase 1. The forecast shall assume a high, medium, and low level of patronage and a realistic operating planning scenario for each level of service. Alternative fare structures shall be considered when determining the level of patronage.*
- (B) Based on the patronage forecast in subparagraph (A), develop alternative financial pro formas for the different levels of service, and identify the operating break-even points for each alternative. Each pro forma shall assume the terms of subparagraph (J) of paragraph (2) of subdivision (c) of Section 2704.08 of the Streets and Highways Code.*
- (C) Identify the expected schedule for completing environmental review, and initiating and completing construction for each segment of Phase 1.*
- (D) Identify the source of federal, state, and local funds available for the project that will augment funds from*

*the bond act and the level of confidence for obtaining each type of funding.*

- (E) Identify written agreements with public or private entities to fund components of the high-speed rail system, including stations and terminals, any impediments to the completion of the system, such as the inability to gain access to existing railroad rights-of-way.*
- (F) Identify alternative public-private development strategies for the implementation of Phase 1."*

The statute also requires the Authority to hold at least one public hearing on the Business Plan. (Public Utilities Code, § 185033(b)(2).) Future legislation may alter this requirement.

With respect to comments that suggest that the Authority has not established the business case for high-speed rail, the Authority disagrees. One purpose of the 2005 Statewide Program EIR/EIS was to evaluate the consequences of meeting the State's transportation needs over the coming decades. That document identified the environmental and economic cost of proceeding with a "do nothing" alternative as well as with a "modal alternative" that would expand freeways, airports, and conventional rail systems without high-speed rail. The conclusion of the 2005 Statewide Program EIR/EIS process was that the HST system was a less costly alternative and less environmentally damaging overall.

**STANDARD RESPONSE 9****Union Pacific Railroad Issues**

*The Authority received many comments related to Union Pacific Railroad (UPRR). Many comments expressed concerns about the safety of locating the high-speed train in proximity to a freight railroad. Numerous comments identified the importance of UPRR's freight operations and expressed concerns about the Authority imposing limits on UPRR's ability to continue to conduct freight operations. Many comments suggest that UPRR's letters to the Authority are evidence that the alternatives in the 2008 Final Program EIR are infeasible, and that the Authority must therefore identify new alternatives that are not proximate to UPRR tracks.*

**Authority's Planning Approach of Using Existing Transportation Corridors**

The Authority's planning for the HST system since 2000 has been consistently based on locating the HST corridor within or adjacent to major existing transportation corridors, such as rail or highway corridors. Prior studies have shown that co-locating linear transportation facilities minimizes environmental impacts. This is particularly the case for minimizing impacts on agricultural lands, biological resources, wetlands and waters, and special-status species and habitats. Co-locating major linear transportation facilities can also help minimize sprawl. These points have been recognized by regulatory agencies such as the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers as important considerations in the Authority's compliance with Section 404 of the federal Clean Water Act. Accordingly, the range of alignment alternatives in the 2008 Final Program EIR were mainly located along (within or adjacent to) rail and highway corridors. The location of the HST system in relation to UPRR freight corridors was one basis for recirculating portions of the 2008 Final Program EIR.

**Safety Considerations in Locating HST Facilities Near Active Freight Operations**

**Safety Clearances:** Safety is the Authority's highest priority in designing the HST system. The HST system will be designed in accordance with all applicable federally mandated safety laws and FRA implementing regulations, applicable state safety laws and regulations, and safety policies and procedures of other train systems as may be applicable, including those establishing clearance requirements for track separation, overpass structures, trenching requirements, and similar matters.

**Equipment Standards:** The HST system will operate trains approved for operation in the California HST system by FRA. Current FRA regulations include equipment safety standards for passenger trains operating at speeds up to 150 miles per hour (mph). FRA is reviewing European and worldwide equipment standards and developing guidance for HSTs operating at up to 220 mph. FRA is also exploring improvements and expansions to vehicle and track safety standards through rulemaking. In its *High-Speed Passenger Rail Safety Strategy* (Federal Railroad Administration 2009b), the FRA explains in some detail the safety standards that are under review and asserts that FRA will issue proposed and final rules on these safety standards "as soon as possible" (Federal Railroad Administration 2009b). In addition, the FRA will consider petitions to waive certain equipment standards on a case-by-case basis as necessary or appropriate to the circumstances. A recent example of this is the FRA ruling granting Caltrain a waiver to operate non-FRA-compliant passenger rail equipment between San Francisco and Gilroy (Peninsula Corridor Joint Powers Board 2009, Cothen pers. comm. 2009).

**Rule of Particular Applicability:** In addition to these rules that will be generally applicable to high-speed passenger trains, the FRA has indicated its expectation that each HSR operation will be

“appropriately tailored to its operating environment” through adoption of a separate rule of particular applicability (RPA) for each HST operation. The Authority is preparing a detailed technical memorandum to support its application for an RPA and intends to make such application at an appropriate time. The Authority’s petition for an RPA and the technical assumptions underlying the RPA will be available for review and public comment prior to any formal action by the FRA. Consistent with FRA’s strategy document, the Authority anticipates that the RPA will consider crashworthiness, crash energy management, vehicle suspension systems, brake systems, train configurations, and other elements critical for high-speed trainsets. The RPA petition may also identify when particular measures, such as barriers or intrusion detection devices, might be may be appropriate to particular operating environments.

### Freight Operations

The Authority acknowledges the importance of safe and efficient freight service to the state and national economies. The Authority is engaging in discussions with freight operators to review current and future projected operating needs and to establish a collaborative environment for considering those needs in the project context. As the design of the HST system advances to include more detail during the project phase, the Authority will be in a better position to define with specificity how much, if any, of a freight railroad’s nonoperating property may be necessary for the HST system. At that time, the Authority, in cooperation with the railroad and regulatory authorities will assess whether the intended use of railroad property would unreasonably interfere with railroad operations and whether the intended use of railroad property poses an undue safety risk. The Authority will consider all reasonable alternatives to accommodate and/or mitigate the railroad’s needs within program constraints. The Authority is committed to working through all such railroad issues on a good faith basis.

### Feasibility of Pacheco Pass and Altamont Pass Network Alternative in Light of UPRR’s Position on Its Right-of-Way

UPRR has objected to the use of its right-of-way—including corridors through both the Pacheco Pass and the Altamont Pass—to support the HST project. Through the Program EIR process, the Authority has explored alternatives for both the Pacheco Pass and the Altamont Pass that are located along existing transportation corridors, including along UPRR freight corridors. The Revised Draft Program EIR, Chapter 3, provides information and analysis that clarifies the greater land use and property effects which would result from an alignment for the HST system that must be located adjacent to, rather than within, UPRR right-of-way. At the program level, both Pacheco Pass and Altamont Pass network alternatives remain feasible. There is precedent for UPRR working with proponents of commuter rail to reach mutually agreeable arrangements for passenger rail near UPRR freight rail (Union Pacific 2009a, Union Pacific 2009b). Options are available in the freight/commuter rail context to address freight concerns about liability (Elliott pers. comm. 2009, Government Accountability Office 2009). Although the commuter rail context is not fully analogous to the high-speed rail context, there is precedent developing for freight rail carriers reaching agreements with high-speed rail project proponents to facilitate planning and design of HST system that respect and protect the needs of freight rail (CSX Transportation and New York State Department of Transportation 2010, Shipman 2009).<sup>2</sup>

### Cooperative Efforts on High-Speed Rail in California

The Authority has had productive meetings with UPRR representatives on more than one occasion since receiving their April 23, 2010 comment letter. These discussions have been very preliminary and include discussions regarding the possibility for track clearance waivers in limited constrained areas. The Authority appreciates the opportunity to work with UPRR to refine these areas

<sup>2</sup> See also HSRA Board (item 4) and Exec/Admin Committee (item 6) meeting materials regarding work with Burlington Northern Santa Fe Railroad Company, May 2010

in good faith. The Authority looks forward to additional meetings with UPRR to improve the nature and quality of dialogue between the parties during the course of project development.



**STANDARD RESPONSE 10****Alternatives**

*The Authority received many comments expressing very strong views about the alternatives. Numerous commenters expressed their opinion that the Authority was required to start afresh with its alternatives evaluation. Other commenters expressed their opinion that the no project alternative, an Altamont Pass alternative, or a Pacheco Pass alternative should be selected. Many commenters identified additional alternative that they identified as ones that the Authority should or must study to comply with CEQA. This response is intended to provide an overview of the range of comments received on alternatives and the range of options recommended for study in the comments.*

**The Authority's Actions to Comply With the Town of Atherton Judgment and Identification of a Staff Recommended Preferred Alternative in the Revised Draft Program EIR.**

In July 2008, after certifying the 2008 Final Program EIR, the Authority selected the Pacheco Pass Network Alternative serving San Francisco via San Jose (including a shared use Caltrain Corridor between San Jose and San Francisco) as the preferred network alternative for connecting the HST system between the Bay Area and Central Valley. The 2008 Final Program EIR has been revised in response to the Superior Court judgment in the Town of Atherton case. To comply with that judgment, the Authority rescinded its certification of the 2008 Final Program EIR and its approval of the Pacheco Pass Network Alternative serving San Francisco and San Jose. In March 2010, the Authority circulated for public review and comment, the 2010 Revised Final Program EIR. This document responded directly to the Superior Court judgment in the Town of Atherton case, offering additional information and clarification in direct response to the issues identified in the judgment that required further work to comply with CEQA.

The Revised Final Program EIR, which includes the entire 2008 Final Program EIR and the 2010 Revised Program EIR, provide a description and evaluation of a "no project" alternative and 21 representative network alternatives that fall into three groups for linking the Bay Area to the Central Valley: Altamont Pass (11 network alternatives); Pacheco Pass (6 network alternatives), and Pacheco Pass with Altamont Pass (local service) (4 network alternatives). The Program EIR also included alignment options within the representative network alternatives. The Revised Final Program EIR applies consistent evaluation methods and criteria to the study area and network alternatives reviewed.

During the entire program EIR process for the Bay Area to Central Valley, the Authority has been guided by the adopted objectives and criteria for evaluation of alignment and station location options as described below and included in the 2005 Statewide Program EIR and the 2008 Final Program EIR.

In consideration of these objectives and criteria, in Chapter 7 of the 2010 Revised Draft Program EIR, the Authority staff recommended the Pacheco Pass Network Alternative serving San Francisco via San Jose (including a shared use Caltrain Corridor between San Jose and San Francisco) as the preferred network alternative and provided the underlying reasons for the recommendation.

<b>High-Speed Train Alignment and Station Evaluation Objectives and Criteria</b>	
<b>Objective</b>	<b>Criteria</b>
Maximize ridership/revenue potential	Travel time Length Population/employment catchment area Ridership and revenue forecasts
Maximize connectivity and accessibility	Intermodal connections
Minimize operating and capital costs	Length Operational issues Construction issues Capital cost Right-of-way issues/cost
Maximize compatibility with existing and planned development	Land use compatibility and conflicts Visual quality impacts
Minimize impacts on natural resources	Water resources impacts Floodplain impacts Wetland impacts Threatened and endangered species impacts
Minimize impacts on social and economic resources	Environmental justice impacts (demographics) Farmland impacts
Minimize impacts on cultural and parks/wildlife refuge resources	Cultural resources impacts Parks and recreation impacts Wildlife refuge impacts
Maximize avoidance of areas with geologic and soils constraints	Soils/slope constraints Seismic constraints
Maximize avoidance of areas with potential hazardous materials	Hazardous materials/waste constraints

Although not meant to be an exhaustive list, some major reasons for the continued recommendation of the Pacheco Pass Network Alternative serving San Francisco via San Jose as preferred are summarized below and discussed in full in Chapter 7 of the 2010 Revised Final Program EIR:

- Maximizes the use of existing publicly owned rail right-of-way through shared-use with improved Caltrain commuter services.

The HST is complementary to Caltrain and would share tracks with express Caltrain commuter rail services. This is supported by the Peninsula Corridor Joint Powers Board (PCJPB - Caltrain).

- Provides direct (all HST trains) service to the two largest cities in northern California – San Jose and San Francisco, including the major transit, business, and tourism center in downtown San Francisco. Provides direct service to northern California's major hub airport at SFO.
- Does not require that HST trains be divided into two directions to serve two city centers. Dividing the trains in two directions reduces the number of trains serving each of the termini stations.
- Provides good HST access for the three-county Monterey Bay area with a south Santa Clara HST station.
- Does not involve a new bay crossing and its associated costs and environmental impacts, including impacts on the federal Don Edwards San Francisco Bay National Wildlife Refuge.
- Is the corridor likely to include the Least Environmentally Damaging Practicable Alternative (LEDPA), as identified by the U.S. Environmental Protection Agency and U.S. Army Corps of Engineers.

The additional information in the 2010 Revised Draft Program EIR did not alter the prior staff recommendation in the 2008 Final Program EIR. The identification of the staff recommendation of a preferred alternative in the Revised Draft Program EIR has provided an opportunity for extensive public comment on the recommendation. The Authority has received extensive comments on the staff recommendation of the preferred alternatives, including commenters' recommendations for what alternative should be selected. Many commenters advocate the "no project" alternative be selected. A very large number of commenters, including many Peninsula cities and residents, advocate for an Altamont Pass alternative. Numerous commenters also support the preferred Pacheco Pass network alternative.

### Suggestions in Comments for the Study of Additional Alternatives

At the same time that commenters consistently offered their views of the appropriate alternatives choice, a number of comments received on the 2010 Revised Draft Program EIR also suggested that the Authority should, or is required to, study and consider various alternatives in addition to those evaluated in the 2008 Final Program EIR and the 2010 Revised Draft Program EIR. The suggested alternatives varied in their level of development from a mere sentence (consider a high-speed bus alternative instead) to a thick report (Setec Ferroviaire report). In brief, the suggested additional alternatives include:

- An alignment terminating the HST in San Jose—see “Termination at San Jose” below.
- Altamont alignments and not the Caltrain Corridor—see “Altamont and Not the Caltrain Corridor” below.
- Use of U.S. 101 north of San Jose—see “U.S. 101 North of San Jose” below.
- Use of Interstate 280 (I-280) north of San Jose—see “I-280 North of San Jose” below.
- A proposal to use an Altamont Alignment generally along State Route 84 through the east bay, across the San Francisco Bay, and along the west coast of the San Francisco Bay north of Dumbarton Bridge – see “Other Altamont Corridor Alternatives” below
- A proposal prepared by Setec Ferroviaire titled, *Evaluation of an Alignment for the California High-Speed Rail Project Bay Area to Central Valley Segment*, April 25, 2010 – see “Other Altamont Corridor Alternatives” below
- Vertical profile alternatives (primarily below-grade options such as trench or tunnel) – see “Alignment Profile Alternatives” below.

An often repeated rationale in the comments is that additional alternatives must be studied because the Authority's prior alternatives have been rendered infeasible based on UPRR's position denying use of its right-of-way for high-speed rail.

The judgment in the Town of Atherton case did not find fault with the range of alternatives studied in the 2008 Final Program EIR, or require additional study of alternatives. CEQA requires that an EIR study alternatives to the proposed project, or to the location of the proposed project, that are capable of reducing environmental impacts and still accomplish most project objectives. CEQA Guidelines section 15126.6 states: “The EIR must study a reasonable range of potentially feasible alternatives, but is not required to study every alternative suggested or numerous similar alternatives that would not reduce significant environmental effects.”

The Superior Court concluded that the 2008 Final Program EIR met the standard of studying a reasonable range of alternatives and also found that it presented a fair and unbiased analysis. (See the 2010 Revised Final Program EIR, Appendix A, p. 17.)

The 2010 Revised Final Program EIR presents additional information and analysis in response to areas noted by the Superior Court as needing additional work under CEQA. In this new material there is no change to the identified preferred alternative and there is no change to the conclusion that the various alignments for the HST project that are studied in the Program EIR are potentially feasible. Accordingly, neither the court's ruling, nor the additional study in the Revised Draft/Final Program EIR, result in a requirement to expand the analysis of alternatives, as various comments suggest.

Overall, the suggested additional alternatives either do not satisfy the project objectives and underlying project purpose, would be infeasible for other reasons, or are similar to alternatives already considered and do not provide any significant reduction in environmental impacts so as to warrant their consideration.

### Alternative Terminating in San Jose

The 2008 Final Program EIR evaluates alternatives that would terminate in San Jose and not travel up the Peninsula on the Caltrain Corridor. These alternatives included:

- Altamont Pass Network Alternative with Oakland and San Jose Termini
- Altamont Pass with San Jose Terminus
- Altamont Pass with San Jose, Oakland and San Francisco via Transbay Tube
- Pacheco Pass with Oakland San Jose Termini
- Pacheco Pass with San Jose Terminus
- Pacheco Pass with San Jose, Oakland, and San Francisco via Transbay Tube
- Pacheco Pass with Altamont Pass (local service) with Oakland and San Jose Termini, and
- Pacheco Pass with Altamont pass (local service) with San Jose Terminus.

The description and full evaluation of these network alternatives were not recirculated in the 2010 Revised Draft Program EIR Material, but clarification of the description and evaluation of portions of these alternatives, specifically between San Jose and Gilroy, were provided in response to the Superior Court ruling in Town of Atherton case.

The Authority notes that for these network alternatives, there is reduced opportunity for transfer between the HST and Caltrain with the loss of potential HST stations north of San Jose and the reduced utility of using Caltrain as a feeder to HST north of San Jose.

The Authority Board will make a new decision on a network alternative to carry into the project level environmental documents. The alternatives that terminate in San Jose are not the staff recommended network alternative (identified and discussed in Chapter 7 of the 2010 Revised Program EIR Material or the Revised

Final Program EIR) but will be considered by the Authority as part of the new decision. Public comments supporting terminating HST service in San Jose will be part of the record that the Board considers.

### Altamont and Not the Caltrain Corridor

As stated above, the 2008 Final Program EIR evaluates alternatives that would terminate in San Jose and not travel up the Peninsula on the Caltrain Corridor. In addition, five of the Altamont network alternatives include HST in some or all of the Caltrain Corridor north of San Jose:

- Altamont Pass - San Francisco and San Jose Termini
- Altamont Pass - San Francisco, Oakland, and San Jose Termini
- Altamont Pass - San Francisco Terminus
- Altamont Pass - San Francisco and San Jose—via San Francisco Peninsula
- Altamont Pass - San Francisco, San Jose, and Oakland—no SF Bay Crossing

An analysis of eleven alignments that do not traverse the Caltrain Corridor at all is contained in the 2008 Final Program EIR. The description and full evaluation of these network alternatives were not recirculated in the 2010 Revised Draft Program EIR Material, but clarification of the description and evaluation of portions of these alternatives, specifically between San Jose and Gilroy, were provided in response to the Superior Court ruling in Town of Atherton.

The Authority notes that for these network alternatives, there is reduced opportunity for transfer between the HST and Caltrain with the loss of potential intermediate stations between San Jose and San Francisco and the reduced utility of using Caltrain as a feeder system to/from HST north of San Jose.

The Authority Board will make a new decision on a network alternative to carry into the project level environmental document. The alternatives that do not traverse the Caltrain Corridor are not

the staff recommended network alternative (identified and discussed in Chapter 7 of the 2010 Revised Program EIR I and Revised Final Program EIR), but will be considered by the Authority as part of the new decision. Public comments supporting network Alternatives that do not use the Caltrain Corridor will be part of the record that the Board considers.

### **U.S. 101 North of San Jose**

The Superior Court in the Town of Atherton case held the Authority had substantial evidence supporting the elimination of the U.S. 101 alignment alternative from study in the 2008 Final Program EIR. See Appendix A of the 2010 Revised Draft Program EIR Material (page 19).

The Authority and the FRA considered a potential HST alternative along U.S. 101 between San Francisco and San Jose as part of the Statewide Program EIR process and the Bay Area to Central Valley Program EIR process. As noted in Table 2.5-4 of the 2008 Final Program EIR (page 2-43), the U.S. 101 alternative was screened out from further study in the program environmental documents. As shown in the table, principal reasons for rejection of these alignments included construction, right-of-way, and environmental concerns, particularly visual and land use (right-of-way acquisition) impacts. Please also see Appendix 2-G1.1 in the Final Program EIR for a discussion of alignment alternatives and station location options eliminated from further consideration.

The US-101 Alignment from San Francisco (Transbay Terminal or 4th and King Terminal Station) would follow the US-101 freeway south to San Jose and would use an exclusive guideway. This exclusive guideway alignment would likely require construction of an aerial guideway adjacent to and above an existing active freeway facility while maintaining freeway traffic. In addition, limited right-of-way would require the extensive purchase of additional right-of-way and a nearly continuous aerial structure between San Francisco and San Jose.

The US-101 alignment alternative would require many sections of high-level structures to pass over existing overpasses and connector

ramps. With overcrossings about every 1.5 miles, the HST will need to run approximately 45 to 50 feet above grade for the length of the freeway median alignment. This proposed elevation assumes the following:

- The elevation of overcrossings over the freeway is about 20 feet. Another 15 to 17 feet is required clearance above the overcrossing. The depth of the spans for the HST viaduct to the top of rail will be 10 to 15 feet.
- A vertical alignment that rises and falls for each overcrossing would produce a substandard condition for 125 mph operations.
- Higher interchanges, such as SR 92 would involve much higher viaduct sections to clear flyover ramps.

An elevated HST line above the Millbrae Avenue overcrossing and I-380 interchange would require further analysis to determine if they intrude into the FAA airspace at the end of the SFO runways, which would be a potential fatal flaw to HST above the median of US-101 in the vicinity of SFO. Similar analysis would be necessary for the San Carlos airport and Moffett Field. The aerial structures would introduce a major new visual element along the US-101 corridor that would have visual impacts (intrusion/shade/shadow) on the residential portions of this corridor. In addition, the existing freeway has substandard features (e.g., medians and shoulders) in many places, and it would be unlikely that Caltrans would agree to use available right-of-way for HST facilities, reserving that space for future improvements to the freeway.

For these reasons, the US-101 corridor was rejected and is not a practicable alternative for HST service between San Jose and San Francisco.

### **I-280 North of San Jose**

The Superior Court in the Town of Atherton case held the Authority has substantial evidence supporting the elimination of I-280 alignment alternative from study in the 2008 Final Bay Area to Central Valley Program EIR. See Appendix A of the 2010 Revised Draft Program EIR Material (page 19).



The Authority and the FRA considered a potential HST alternative along I-280 between San Francisco and San Jose as part of the Statewide Program EIR process and the Bay Area to Central Valley Program EIR process.

As noted in Table 2.5-4 of the 2008 Final Program EIR (page 2-43), the I-280 alternative was screened out from further study in the program environmental documents. As shown in the table, principal reasons for rejection of these alignments included construction, right-of-way, and environmental concerns, particularly visual and land use (right-of-way acquisition) impacts.

I-280 is adjacent to protected watersheds for over 10 miles, in places bisecting the watershed. It is designed to support approximately an 80 mph automobile design speed, with grades greater than those allowable for HST, and 7 miles longer from Transbay Terminal in San Francisco to Diridon Station in San Jose.

The Authority notes that, if there would be no opportunity for transfers between HST and Caltrain except at the San Francisco terminal and San Jose Station, and the utility of using Caltrain as a feeder to HST would be substantially reduced. Caltrain passengers would need to travel to one end or another of the Caltrain corridor to access HST.

The Authority and FRA revisited this alignment alternative and have affirmed that the previous conclusions that this alternative was not practicable.

An I-280 Alignment from San Francisco (Transbay Terminal or 4th and King Terminal Station) would follow south along the I-280 freeway alignment to San Jose and be on an exclusive guideway. This exclusive guideway alignment would have major construction issues involving the construction of an aerial guideway adjacent to and above an active existing freeway facility while maintaining freeway traffic. Limited right-of-way in this corridor would require the extensive purchase of additional right-of-way and nearly exclusive use of an aerial structure between San Francisco and San Jose. The portion within the City and County of San Francisco is fully developed, and connecting the alignment alternative to Diridon

Station in San Jose would require a guideway passing through developed portions of downtown San Jose. These areas would require considerable property acquisition.

An I-280 alignment alternative would require many sections of high-level structures to pass over existing overpasses and connector ramps (in particular at interchanges with State Routes 17/880, 85, and 92) resulting in high construction costs and constructability issues that would make this alignment alternative impracticable. This alignment alternative would also require relocating and maintaining freeway access and capacity during construction. The aerial structures would introduce a major new visual element along the I-280 corridor that would have visual impacts (intrusion/shade/shadow) on the residential portions, nature preserves, and scenic areas for this alignment alternative. The considerable earthwork and retaining walls needed as the freeway traverses the rolling hills of the peninsula would have potentially significant impacts to nature preserves and adjacent residential neighborhoods. The I-280 corridor would not allow a convenient connection to San Francisco International Airport. For these reasons, the I-280 alignment alternative was rejected and would not be a practicable alternative for HST service between San Jose and San Francisco.

### **Other Altamont Corridor Alternatives**

#### SR-84/South of Livermore Alignment Alternative

Several alternatives from the East Bay to the Central Valley were considered as part of the Bay Area to Central Valley Program EIR process. As noted in Table 2.5-4 of the 2008 Final Program EIR (page 2-43), SR-84/South of Livermore Alignment Alternative and the SR-84/I-580/UPRR Alignment Alternative were screened out from further study in the program environmental documents. As shown in the table, principal reasons for rejection of these alignments included Natural resources, habitat and endangered species, agricultural lands, water resources impacts. Please also see Appendix 2-G1.4 in the Final Program EIR for a discussion of alignment alternatives and station location options eliminated from further consideration.



SR-84/South of Livermore Alignment Alternative would extend east near the UPRR alignment alternative through Niles Canyon then follow the SR-84 corridor south of Pleasanton and Livermore and continue east (south of Livermore) to the Patterson Pass corridor and to Tracy. Station location options include the Pleasanton (I-680/SR-84) station or Livermore (South Isabel).

The SR-84/South of Livermore alignment alternative was eliminated from further investigation because it would have high potential impacts to the natural environment and to agricultural lands. This alignment alternative would cut through agricultural areas and undeveloped conservation easements, increasing habitat fragmentation. The SR-84/South of Livermore alignment alternative would have greater potential impacts to high value aquatic resources and threatened and endangered species than other alignment alternatives through the Tri-Valley (Livermore, Pleasanton, and Dublin) area.

There are several state and federal Endangered Species Act concerns associated with the SR- 84/South of Livermore alignment alternative. Due to the more undeveloped setting of this alignment alternative, there is a higher likelihood of adverse effects to protected species including California tiger salamanders, California red-legged frog, San Joaquin kit fox, Alameda whipsnakes, and listed branchiopods (fairy shrimp).

The SR-84/South of Livermore alignment alternative would by-pass the existing urbanized areas of Livermore, Pleasanton, and Dublin and is remote with respect to the existing BART and Altamont Commuter Express routes. As such, it would not be feasible to provide regional or longer-distance services which would provide convenient access to downtown Livermore or Pleasanton. Candidate station location options along this segment would not support transit-oriented development as well as downtown stations. Development of a transfer point with BART on the SR-84/South of Livermore alignment alternative would not be feasible without a significant extension of the BART line.

SR-84/I-580/UPRR Alignment Alternative was eliminated from further investigation because it would have high potential impacts to the

natural environment and agricultural lands. This alignment alternative would have the same issues as presented for the SR-84/South of Livermore alignment alternative (see above).

#### Setec Ferroviaire Alternative

An Altamont Pass alternative is described in Exhibit C to comment letter O012, an April 25, 2010, report by Setec Ferroviaire entitled "Evaluation of an Alignment for the California High-Speed Rail Project Bay Area to Central Valley Segment." Although the Superior Court in the Town of Atherton case did not require the Authority to study further alternatives, we have carefully evaluated the proposed Altamont Pass alternative in this report. Response to comment O012-11 summarizes our observations on what we will refer to as the "Setec Alternative." The Setec Alternative described in Exhibit C involves: (1) Altamont Pass to Fremont; (2) routes through Fremont; (3) a San Jose connection from Fremont; (4) a crossing of the Bay at Dumbarton and line to a junction at Redwood City; and (5) and possible use of Highway 101 from Redwood City to South San Francisco.

The Setec Alternative makes certain trade-offs that do not offer any significant benefit above alignment and network alternatives studied as part of the 2008 Final Program EIR for Altamont. In most locations, the alignments share the same characteristics:

- There is a crossing of San Francisco Bay at Dumbarton.
- Newark and Fremont must be crossed using a rail or utility corridor
- Tunneling is required between Fremont and the I-680 corridor near Pleasanton/Sunol
- A new crossing of Altamont or Patterson Pass is made
- Tracy is crossed on/near a UPRR right-of-way (it is unclear in Exhibit C but the alignment shown on Plan 5, while it ends at I-580, it is aligned to meet the UPRR line running south of Tracy)

The alignment characteristic that differs between those studied in the 2008 Final Program EIR and Setec Alternative is how the alignments differ in their path in the area of Pleasanton and

Livermore. The CHSRA alignment alternatives follow existing transportation corridors, either I-680 and I-580 or the UPRR. The Setec Alternative attempts to follow a powerline corridor, but that corridor is in a rural and agricultural area. The impacts and benefits of the CHSRA alignments in urbanized areas are traded for the Setec Alternative's impacts and benefits of a rural alignment. Evidence of some of the obvious potential impacts of Setec Alternative's alignment have been presented above. There is no benefit that stands in favor of the entire alignment verses the Altamont alignments already considered in the 2008 Final Program EIR.

Given that the tangible differences between the Altamont alignments studied in the 2008 Final Program EIR and the Setec Alternative are small, we do not believe the Setec Alternative alters the basic comparison between Altamont Pass and Pacheco Pass network alternatives that serve both San Francisco and San Jose. We do not believe the Setec Alternative merits further consideration.

### **Alignment Profile Alternatives**

The Authority Board committed in July 2008 to investigate profile alternatives to avoid and minimize potential impacts, including trench, tunnel, aerial, and at-grade. Although the Authority has rescinded its July 2008 program decision, the commitment to examine profile alternatives has been carried forward into the project level alternatives screening.

However, the precise alignment and profile options for the HST system in the Caltrain Corridor is being further evaluated and refined as a part of the ongoing preliminary engineering and project-level environmental review. Use of a trench or tunnel concepts in sensitive areas or where it is an appropriate and necessary design option is being further evaluated with more detailed study during this phase. Some of the criteria for the evaluation would include overall ground footprint, potential right-of-way (ROW) requirements, environmental impacts, constructability and construction methods, costs, as well as community cohesion (access across existing corridor). The process will also provide an opportunity for the communities and cities to comment and provide feedback.

### **Caltrain Service and Corridor Issues**

Caltrain has stated that its future as a viable commuter rail system is dependent on funding associated with the HST. Voter approval of the State's first HST system, and the subsequent creation of the Peninsula Rail Program, will ensure the realization of these critical improvements to the Caltrain system in conjunction with the implementation of the HST. In addition, Caltrain will benefit from the creation of a fully grade-separate right of way, allowing trains to operate more safely by eliminating at-grade traffic and pedestrian crossings.

The PCJPB owns the Caltrain right-of-way. The Authority and PCJPB have negotiated a memorandum of understanding (MOU) to work together on the corridor and to develop a "single vision" for the corridor moving forward into the future. The MOU was approved by the California High Speed Rail Authority Board on March 5, 2009, and by the PCJPB on April 2, 2009. The purpose of this agreement is to establish an initial organizational framework whereby CHSRA and PCJPB engage as partners in the planning, design and construction of improvements in the Caltrain Rail Corridor that will accommodate and serve both the near-term and long-term needs of CHSRA intercity high speed rail service and PCJPB commuter rail rapid transit service.

Caltrain and high-speed trains must be able to operate on the same tracks at the same time. In the 2008 Final Program EIR a typical configuration was assumed consisting of the two inside tracks for HST and Caltrain express service operating at compatible speeds and the outside tracks for Caltrain local service and temporally separated freight service. The shared four-track system enables express service to pass local service at each station and maintains schedule reliability. The shared tracks also enable the HST to run fast express service between SF and Jose to achieve 30 minute travel times and provide high frequency service. The Federal Railroad Administration prohibits "mixed traffic" – operating standard American trains and lighter rail equipment on the same tracks. However, Caltrain has received a waiver from the FRA. To avoid collisions, Caltrain will use an enhanced signal system that includes federally mandated Positive

Train Control to prevent trains from colliding with each other, with other vehicles or with fixed objects. In addition, Caltrain equipment will use the latest Crash Energy Management technology to distribute or “manage” the energy from a collision, protecting the passengers onboard the train. The waiver allows Caltrain to operate all passenger trains, whether diesel or electric, to run on the same tracks. The Authority will have to seek its own waiver, but the Caltrain waiver is a clear precedent that should help the Authority's waiver request succeed.

As noted in the 2008 Final Program EIR, Caltrain is viewed as complimentary feeder system to the HST system. The Program EIR identified shared stations in San Francisco at the Transbay Terminal, the Millbrae Caltrain / BART station (to serve SFO), a potential station at Palo Alto or Redwood City, Diridon Station in San Jose, and the Gilroy Caltrain station. This distribution of stations along the Caltrain corridor would enable a short trip from any Caltrain station to connect to the HST at a joint station, expanding convenient access to the HST along the Caltrain system.

Overall, the HST system would improve inter-modal connectivity with local and commuter transit systems. Prop 1A ensures that complementary rail capital improvements would be funded by a \$950 million portion of bond funds. These funds must be allocated to intercity, commuter and urban rail systems and shall provide direct connectivity and benefits to the high-speed train system and its facilities or be part of the construction of the system.

Construction impacts associated with the implementation of the HST and improvements to the Caltrain infrastructure would be a topic analyzed at the project-level to create a plan to mitigate potential operational impacts to Caltrain's service during the construction period.